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I.—*Notice of the VALLABHI' dynasty of Saurashtra ; extracted from the Buddhist records of the Chinese. By M. EUGENE JACQUET, Member of the As. Soc. of Paris.*

A new source of information on the darkest period of Indian history cannot but be most acceptable to all who have perplexed themselves in attempting to reconcile and connect the scattered and contradictory traditions of the Rajpút bards with the inscriptions found in various parts of western India ; and to assign specific dates even to sovereigns whose names are most familiar and notorious. While Mr. TURNOUR is throwing light upon the earlier periods of Buddhist rule, from the authentic chronicles preserved among the Ceylonese priesthood, it has been reserved for a distinguished orientalist at Paris to render us an equally eminent service from an opposite and more remote quarter of the globe ! M. KLAPROTH's tables of Buddhist chronology, translated from the Chinese and Japanese authorities, had proved the intimate connection that existed between *India, Tibet, and China* for the first eight centuries of our era, and had encouraged the hope of gleaning a few cursory notices of the state of the Buddhist portion of the continent of India from the annals of some of their common patriarchs, whose head-quarters were variously located in *Magadha, Capila-vastu, Cabul, and Ferghana*, during that long period. More than this is, however, likely to be realized :—the narrations of Chinese pilgrims and travellers have been happily preserved, and, more happily still, have found their way to *Paris*, where alone, perhaps, exists the concurrence of talent and research capable of turning these valuable records to their best purpose. The specimen we have now the satisfaction of introducing to our readers has been elicited,

the author writes us, by a perusal of Mr. WATHEN's translation of the *Gujerát* inscriptions in our last volume,—a translation which M. JACQUET does not hesitate to pronounce “ce que l' on a encore publié de mieux en ce genre dans l' Inde à l' exception peut-être de quelques monuments traduits par votre admirable COLEBROOKE.”

We cannot deny ourselves the pleasure of adding his further testimony to the great utility of this important document. “J' ai été d' autant plus satisfait de voir ce *Shásana* si heureusement interprété, que je possède, dans le petit nombre des copies d' inscriptions rassemblées par TOD, un *Shásana* non daté, écrit dans le même caractère; et que j' avais déchiffré de manière à obtenir un alphabet absolument conforme à celui de Mr. WATHEN. C' est encore cet alphabet qui m' a donné le moyen de déchiffrer les legendes des anciennes medailles indiennes, et de reconnaître le nom alteré de *Chandragupta* dans l' inscription de *Bhilsa*, publiée dans votre journal d' apres le facsimile de Mr. HODGSON.”—In fact, M. JACQUET at *Paris* has been pursuing step by step the path we have been following in India; and while this fortunate key has opened to him an insight into the *Bhilsa* inscription, the self-same has led Capt. CUNNINGHAM to discover the titles *Maharája adhi rája*, &c. in the inscription from the *Khandgiri* rock, published in STIRLING's account of *Cuttack*. The copies are both too imperfect to hope for further success until the originals can be re-examined, and this has been undertaken by two friends upon whose zeal we may entirely confide,—Mr. L. WILKINSON of *Bhopal*, and Lieut. KITTOE, whose regiment has just marched to *Cuttack*.

But to return. In addition to inscriptions and coins, we may now look to the geographers and historians of *China*, for an insight into the middle ages of Indian history; and the latter have this great advantage over the former,—that they have scrupulously preserved dates in their records, and that they, as M. JACQUET justly says, “font le journal de l'Asie depuis le second siècle avant notre ère.” In his very interesting article inserted in the *Journal Asiatique* on the recent Bactrian and Indo-Scythic discoveries, we are promised further and more copious extracts from the Chinese relatively to *Cabul* and the adjacent countries.—“Les témoignages des auteurs orientaux, et en particulier des historiens chinois, sur les monnaies des différents peuples qui ont successivement occupés les contrées de l'Asie centrale; les temoignages des mêmes auteurs, sur les langues et les écritures de ces peuples;”—these are included among the objects embraced by the learned author in his intended publication, ‘*Corpus Inscriptionum Indicarum*,’ the appearance of which, our readers will regret to hear, is unavoidably delayed beyond the period at first indicated. It



is only to be hoped that the health of the single individual upon whom this mighty labor has devolved by the lamented death of M. KLAPROTH, will not succumb under so vast and important an undertaking.

We trust no apology is necessary for insertion of M. JACQUET's note in its original language.

Ed.

“ Je trouve les renseignements suivants sur la contrée de *Vallabhî* et sur l'origine des rois de cette contrée dans la relation d'un religieux Bouddhiste chinois qui visita la Transoxiane, la Bactriane et l'Inde dans les années 632 et suivantes de notre ère.

“ ‘ La contrée de *Fa la pi*, aussi nommée contrée septentrionale de *Lolo*, a plus de six mille *li* de tour. La ville capitale de la contrée a plus de trente *li* d'enceinte. Les productions du sol, les conditions de la température, les mœurs, et le naturel des habitants sont les mêmes que dans la contrée de *Ma la pho*. Le nombre des habitants est considerable ; les familles sont opulentes ; on y compte en effet plus de cent maisons qui ont cent *laksha* de fortune ; d'immenses trésors viennent des pays les plus lointains s'accumuler dans ce royaume. On y trouve plus de cent *kialan* (monastères bouddhiques ; ) les religieux y sont au nombre de plus de six mille ; ils étudient pour la plupart la section des écritures nommée *la parfaite mesure* qui appartient au petit *yâna*. Il y a quelques centaines de temples consacrés aux *dévas* ; les heritiques y sont en grand nombre. Bud-dha, du temps qu'il était dans le monde des hommes, a plusieurs fois visité cette contrée ; aussi le roi *Wou-yeon* a-t-il élevé des *sthoupa* auprès de tous les arbres sous lesquels Bouddha s'était reposé, pour les faire reconnaître. La dynastie actuelle est de la race des *cha ti li* ; l'ancien roi était neveu de *Che lo 'o ti to*, roi de la contrée de *Ma la-pho* ; celui qui gouverne presentement est gendre de *Che lo 'oti to* roi de la contrée de *Kie no kieou tche* ; il se nomme *Thou lou pho po tcha*...”

“ Le religieux Chinois ajoute qui c' était un prince très genereux, très sage &c. car il avait une grande veneration pour les *trois joyaux* (Bouddha, la loi, et l'assemblée.)

“ *Fa la pi* transcrit *Vallabhî* ; et *Lolo* लो लो *Lâta* ou *Lâra*, la *Larique* des anciens ; *Malapho* est pour *Mâlava*, et *Cha ta li* pour *Kchatriya* ; *Chelo 'o ti to* est la forme Chinoise de *Shilâditya* ; *Kie no kieou-tche* celle de *Kanyâkoubdja* ou *Kanoudj* ; et *Thou lou pho potcha* représente regulièrement *Dhrouvabhâtta*. Quant au roi *Wou yeon*, c'est à dire *sans chagrin*, c'est *Ashôka* déguisé sous une traduction Chinoise.

“ Je dois d'abord observer que nous avons ici un roi de *Malava* et un roi de *Kânyakoubdja* tous deus nommés *Shiladitya* ; (et ils parais-

sent distincts des roix de *Vallabhí* qui ont porté ce nom) qui ne sont pas cités dans les tables genealogiques des rois de l'Inde recueillies jusqu' à ce jour. La relation ne fournit aucun renseignement sur *Shiladitya* roi de *Kanoudj* ; mais on lit dans un autre endroit que *Shiladitya* roi de *Málava* regnait soixante ans avant l'arrivée de notre religieux dans l'Inde. *Dhrouvabhātta* est certainement le même nom que *Dhrouvaséna* ; *bhātta*, et *séna* étant des titres de *Kchatriya*, de même valeur et presque synonymes, qui s'emploient indifferemment l'un pour l'autre, sans que l'identité du nom propre auquel ils s'ajoutent en puisse être compromise. La liste genealogique des rois de *Vallabhí*, extraite par M. WATHEN des inscriptions qu' il a si heureusement interprétées, nous fait connaître deux *Dhrouvaséna*, dont l'un est le quatrième et l'autre le onzième prince de la dynastie des *Bhátárka*. Il n'est pas probable que le *Dhrouvabhātta* de la relation Chinoise soit *Dhrouvaséna I* : l'inscription que nous connaissons eût sans doute fait mention de l'honneur qu'avait eu ce prince d' être allié à la famille royale de *Kanoudj* ; un état qui n'avait été élevé au rang de royaume que sous le frère et le predecesseur de ce prince, n'eût pu d'ailleurs être parvenue si rapidement à la haute prospérité et à l'état de puissance ou le trouva le voyageur Chinois. Ce qu'il rapporte de *Dhrouvabhātta* s'applique donc à *Dhrouvaséna II*, et l'un des points chronologiques les plus importants de l'histoire de l'Inde occidentale peut être déterminé avec assez de précision par cette identification de deux noms dont un est daté. L'inscription publiée par Mr. WATHEN, et redigée par l'ordre du septième prince de la dynastie, peut donc être approximativement rapportée à l'année 550 de notre ère : cette date s'accorde mieux avec les données paléographiques que celle de 328, deduite très ingénieusement d'ailleurs par l'auteur, des traditions singulièrement suspectes des *Djaína*.

II.—*An account of some of the Petty States lying north of the Tenasserim Provinces ; drawn up from the Journals and Reports of D. RICHARDSON, Esq., Surgeon to the Commissioner of the Tenasserim Provinces. By E. A. BLUNDELL, Esq., Commissioner.*

[Continued from page 625.]

DR. RICHARDSON'S SECOND VISIT, 1834.

The object of the second visit was to ascertain the truth of the rumours that had reached *Maulamyne*, of some dissatisfaction existing among the Shan traders on account of the bad market they had experienced latterly for their cattle, compared with former years, and to

obviate any bad feeling that might have arisen in consequence. None had visited *Maulamyne* that season, and it was said they declined bringing their cattle down any more. It was important that measures should be adopted to ensure the continuance of our supplies from that country, and Dr. R. was directed to extend his visit on this occasion to *Zimmay*.

He started on the 6th March, 1834, and travelling nearly the same route as that by which he had returned from his first visit, he reached *Labong* on the 1st April, having, when near that place, encountered the same petty delays as before, on the ground of preparing for his reception, and ascertaining from the astrologers a lucky day for his arrival.

"On the 1st of April started in the morning for *Labong*; and though the THOOGYEE of *Passony*<sup>92</sup> was with me at starting, neither he nor any of the neighbouring head-men accompanied me. One man ran before to shew me the road. Reached *Labong* about noon, and on arriving at the temporary houses or *tays*<sup>93</sup>, for which I had waited three days, found only three small ones for the people, which might have been put up in three hours. No house for myself, and no one there to receive me. This was all so unlike my reception on my last visit, that I sent the interpreter to CHOW-HOUA to say, if they did not wish to see me, I was ready to return. He assumed anger and surprise that I had arrived without his being made aware of it; said he had ordered the head people of the villages to accompany me, and when half way to run out and let him know, when he would be at the *tays* in time to receive me. The same reason was given for not building me a house, as on my last visit; viz. that as I had a tent, they did not think I would occupy it; but he immediately called the people who had put up the sheds, and gave them orders to set about a house, which they commenced at once.

"The CHOW-HOUA sent some officers to wait on me, with a request to know when I wished to see CHOW-TCHE-WEET. I expressed a wish to see him to-morrow, as the approach of the rains would necessarily make my stay shorter than I wished. I hear loud complaints on all sides of the rascality of the Bengalees who have come up lately from *Maulamyne* to purchase cattle, and the people who last visited *Maulamyne* are very inveterate against the contractor (SHEK ABDULLAH) for supplying cattle to the troops, and declare their determination never to return so long as he continues to be the "*Gomanie*,"—as the first bullocks were taken by the Commissariat on the Company's account; and he being now the only purchaser, they believe him to be the Company, (*Gomanie*).

"On the morning of the 5th, the officers of the court, and some people with silver calats (salvers) for the presents and Mr. BLUNDELL's letter, came to conduct me to the TSO-BOAS<sup>94</sup>. They preceded me, followed by the people who accompanied me, about 40 in number, dressed in their gayest putsos, thirteen of them each carrying a musket. On arrival at my former place of audience, I found no sheds erected, and that I was to be received in the house (query, palace?) of the chief. I dismounted at the gate *Chow Rajaboot*; the KEINTOUNG

Tso-BOA and others came out half way to meet me, (the whole distance about sixty paces,) and preceded by the letter, (the presents having stopped at the gate,) they led me to a seat on the chief's right. I bowed before taking my seat, and wearing my boots was never objected to. He was seated on a gilded pedestal (*yozaboleen*<sup>95</sup>) about two and a half or three feet high, and before him the chiefs of his principality on carpets spread on the mats with large triangular pillows to lean against, ornamented with gold émbroidery. As soon as we were seated, the presents were brought in and placed before him. He put the usual questions respecting the King of England, the Governor General, &c. &c., the length of my journey, and the difficulties of the road; made some excuse for not meeting me on the road; mentioned the death of his son and nephew with much feeling; and expressed good-will and friendship towards us. Indeed, nothing could be more friendly or fatherly than my reception altogether, and certainly with every appearance of sincerity. It was evident at a glance his illness was no formal excuse for not seeing me; he was much emaciated, and evidently very weak. I was seated nearly opposite to the door of the private apartment, which was crowded with women and children, who sent me out a present of fruit. There was no dancing as on my former visit, but a male and two female singers seated immediately within the door of the private apartment, sung a sort of metrical history of the exploits of the Tso-BOA and his six brothers, in which the successful insurrection of KAWEEA, the eldest brother, against the Burmese sixty years ago, and the carrying off the people from *Kewt-them*<sup>96</sup>, *Keintoung*<sup>97</sup>, and *Mein-Neaung*<sup>98</sup>, by the present chief, held the most conspicuous place; and though many of the unfortunate sufferers were present, any consideration for their feelings seemed never to enter the old man's mind: yet the expression of his countenance and manners altogether is benevolent; which character he bears among the people. The voices of the performers, both in sweetness and compass were, beyond comparison, superior to any thing I have heard out of Europe. After sitting about three-quarters of an hour, he retired on plea of weakness; his feet were swelled, and he tottered a good deal before reaching the door of the inner apartment. After spending some time in conversation with the chiefs I took my leave, intimating my intention of calling in the morning on CHOW-HOUA, by whom all business is now transacted.

The chief's house is situated near the middle of the town in a large stockade inclosure, and surrounded by a garden. The wooden hall in which I was received is about sixty feet long by thirty wide, and ornamented with three small China chandeliers, some paltry Chinese and India looking-glasses and China lanterns, some of glass and some of paper; a picture of the great pagoda of *Rangoon*; one of a Chinese joss, and a portrait much resembling one of our Royal Family. The most valuable ornaments were the muskets I took up in my last visit, which, with some Chinese-looking scimitars and swords with long silver handles, completed the decorations. The white umbrella was not unfurled; the floor in front of the *yozabollen* or throne was covered by the carpets and triangular pillows of the chiefs, who assume a much more manly position than in the presence of some of the lowest chiefs of *Bangkok*; though I am told that next to the Rája of *Ligore*, this is the highest Chief in the kingdom. On the 6th, according to my notice of yesterday, called on CHOW-HOUA, and had a long conversation on the duties being taken off their elephant-hunters in our pro-



vinces. He readily agreed to the free sale of buffaloes, paying an export duty of half a tical of coarse silver, and reducing that on bullocks to the old rate of one quarter. I brought to his notice the complaints of the Bengalee cattle-dealers, of the refusal of the court-officers to interfere in their complaints against each other, and called his attention to the 10th paragraph of Colonel BURNES'S treaty of *Bankok* in 1826 on the subject. He complained of the total want of principle in these people, with one or two exceptions, (which all I have heard from themselves tends to confirm;) said he was glad the subject had been mentioned; as, though they had copies of the treaty, they were afraid to punish our people, and had, besides, another difficulty to contend with, in the offenders escaping from one territory to another; and that though they had the power, there was an indelicacy felt in apprehending them in the *Zimmay* district. They had now my opinion that they should act according to the treaty, and would do so in future, and hoped there would be no further cause of complaint. He said he had no objections to the *Zimmay* officers following offenders into this district, and that they would do the same from this; but begged me to impress the necessity of it on the *Zimmay* chief on my visit there, to prevent misunderstanding between relations; as CHOW-TCHE-WEET is now a very old man. I found by this, that the visit I had intimated I intended to make to *Zimmay* was taken as a settled matter, though they had strenuously opposed it on my asking to do so in my last visit.

“On the 10th I received an invitation, or rather a request, from CHOW-TCHE-WEET to attend his son's funeral. He begged I would come early, and see the whole ceremony. I accordingly went at 11 o'clock, and remained till 2. On my arrival, a Ponghee was seated in the centre of the shed reciting, in a monotonous sort of chaunt, a blessing on all present. He ceased soon after my arrival, and a daughter of CHOW RAJA WOONG of *Lagon*, a very pretty girl of 18 or 20 years of age, played for some time on the *ke wine*, (brazen circle,) an instrument composed of small graduated gongs hung horizontally in a circle, in the centre of which the musician sits and beats with small sticks. She played evidently as a proficient. This was followed by a boxing-match, in which the boys, when once come to blows, hammered away at each other's faces much like two little English fellows of the same age. There was a good deal of shuffling before the first blow was struck. They were followed by two men who flourished their arms about within a few inches of each other's faces under a most overpowering sun, for half an hour, without, however, hurting each other much, though they were exceeding serious and intent. CHOW RAJA BOOT then, dressed in a white robe, ascended a small platform about seven feet from the ground, and showered, or rather pelted, a largess amongst the people. On the platform was an artificial bamboo-tree, with perhaps two hundred limes, in each of which was a small Siamese coin of two or three annas hanging from the branches, which he pulled off, and with them pelted the people below;—though there was, of course, great struggling for the limes, there was little noise, and not the least quarrelling. CHOW-HOUA's wife then begged I would allow the Burmese to exhibit their dance, and as there were two professed dancers of the party and one or two musicians anxious to acquire merit by assisting in the amusement, she was gratified; after which they commenced to drag out the car with coffin. It was burned with rockets in the same manner as a Ponghee,

outside the town, about 4 o'clock; most of the wives of the headmen were present, and the whole of the ceremonies were gone through without quarrel and in great good humour. The deceased was the same whose house was burnt during my last visit here, and who sent out to beg me to look through a small sextant I had been seen using, and tell him who had stolen a ring he lost on the occasion. I left the shed when the coffin was moved, and prepared to start for *Zimmay* in the morning, congratulating myself in getting off a day sooner than I had anticipated; but about 9 o'clock, BENYA TCHE came out to say CHOW-TCHE-WEET begged me to remain one day, as he was anxious to see me to-morrow before starting for *Zimmay*. After many complaints of loss of time and fear of the rains, I was obliged to consent to remain; and on the morning of the 11th, an officer came out to the encampment to say CHOW-TCHE-WEET wished to see me. I promised to wait on him immediately after breakfast. On arriving at the house found a large assembly, and the only communication the old man had to make, was a request to remain till after the new year\*, a further loss of three days. I at first refused, but on his urging his request, and reflecting that nothing would be done at either place during the festival, I agreed to remain on condition I was not detained here on my return. The Tso-BOA made some demur, as in duty bound, as a good Buddhist, about the sale of the cattle; he was, however, easily satisfied by transferring the sin to the sellers and CHOW-HOUA, who sanctioned it. He was as kind as usual, always addressing me as his "*luck Chow Engrit*," literally, "son chief English." He talked of a reference to *Bankok*, which I said was unnecessary after the treaty of 1826, and he was again satisfied. He is quite in his dotage, and repeated the same things over and over: the people from their respect for him shew him, however, much consideration. He asked if there was any difference in the value of his presents and those to the *Zimmay* chief, and seemed pleased when told that his were the most valuable.

"After breakfast, on the 13th, two officers, dressed in white robes used in religious ceremonies, came out to my tent by the CHOW's orders, to conduct me where the ceremony on his grandson entering the priesthood was to be performed. I found a large assembly of people in an old *zayat*<sup>99</sup> near the pagoda. The CHOW was seated on a mat near the centre of the place,—the other chiefs near him, his wives behind him—all dressed in white. I found a carpet and pillow for me close to CHOW RAJA BOOT. A Poungee was seated in the middle expounding the law, and CHOW-TCHE-WEET had told him to continue till my arrival, as he wished me to see the whole ceremony. As I was told I would be expected to contribute, I sent the interpreter to the CHOW with 10 rupees; and he soon afterwards went out to the open space before the *zayat* to inaugurate the boy (about 7 years of age) in his holy office. The ceremony is the same as in Burmah and other Buddhist countries, shaving the head, bathing, investing with the yellow garment. Whilst he was gone, his son told me a *Rahan* was also to be raised to the office of high priest, (*See-dan*)<sup>100</sup>; that the CHOW before investing him with his office asks him if he will obey his lawful orders; which being answered in the affirmative, he makes over to him all

\* I afterwards learnt that the reason of his requesting me to stop was a fear lest I should be insulted, or the people get into any quarrel with the *Zimmay* people, during the holidays at this joyous season.

authority over all ranks of the priesthood. The high-priest then asks the Tso-BOA if he will listen to his intercession in favor of criminals condemned to death when it shall appear to him that the punishment is too severe for the offence; to which he assents. On the return of the Tso-BOA to the *zayat* he called my interpreter and told him in a whisper the money I had given was too little for distribution, and desired him to ask me for 13 rupees more; which I immediately sent. In the meantime, an old priest invoked a blessing on all present by name, amongst which I discovered my own; and the *Sea-dan* who has been raised by the votes of the priests for his strict observance of the precepts of Budh, promulgated rules and ordinances for their guidance much stricter than those which have been known here for some years, where the discipline has been exceeding lax. Sent the interpreter to inquire how the CHOW-HOUA, who had been ill, was, and to request BENYA PATOON<sup>101</sup> to call on me. The former no better; the latter promised to call in the morning. BENYA PATOON called on me this morning; he is about 50 years of age, and an exceedingly intelligent person. His father came originally from *Pegu* to *Zimmay* with about 3000 other Taliens on the destruction of that city by ALOMPRA, A. D. 1757. A short time after their arrival here, an army of Burmans encamped to the northward with the intention of attacking *Zimmay*. The Taliens were promised this,—if they beat off the enemies, they should henceforth live free of taxes. They attacked them, and were successful, and for a time were well treated; but in three or four years, when gratitude began to cool, they were taxed without mercy; and on any expression of discontent, numbers were executed under pretence of secret conspiracy. The Taliens in fear and disgust removed farther northward to *Keintheu* under the Burmese;—the BENYA and some other young men went afterwards to *Ava*, from whence he was sent to *Keintheu* on a royal message, and with twenty-five others was caught by a slave-catching party, and from this place sent to *Bankok*, where he soon came into favor with the king, who raised him to his present rank, and sent him up here to look after the Siamese interest at all the three towns. He gives a shocking account of the brutal rapine, and destructive waste of human life in the petty border-warfare and slave-catching incursions all along the frontiers, that has kept down population, laid entirely waste many large towns, and retarded civilization and all the arts of peaceful life in this unhappy country to a degree that could not be exceeded, I should hope, in the annals of any portion of Africa. All of this has been almost entirely put a stop to by our occupation of the provinces on the coast. He gives a somewhat different version of the Cochin-Chinese war from any I have heard. He said the Cochin-Chinese endeavoured to save the town of *Wentian*<sup>102</sup>, *Chandapoora* or *Lingen*, when the Siamese attacked it seven years ago. The Siamese would not attend to negotiations on the destruction of the city when horrid cruelty appeared to have been perpetrated. One of the sons of the king found his way to *Hue*. The King of Cochin-China<sup>103</sup> sent an ambassador to *Siam* to say the prince had found his way to him; but as he wished to avoid a war, under certain conditions he would give him up. The Siamese treacherously murdered his ambassador, saying he had given protection and encouragement to rebels. The Cochin-Chinese, enraged at this piece of perfidy, had commenced the war. The latest accounts said the Siamese had the best of it, and were east of the Cambodia river.

“Left *Laboung* this morning (15th), at 6 A. M., and in five hours and a half reached *Zimmay* about N. 30° West of the former place. The Mein Neaung Tso-BOA came to see us off, and brought with him a person sent as a guide, though many of the people with me were known to be acquainted with the road. He took us through the fields, a path he evidently did not know himself, under pretence of breakfast being prepared for the people at some village by the way, and I ultimately regained the road by the direction of some Talien people we met. The whole of the road lay through a rich and cultivated country, irrigated by a water-course from the *May-ping*, the main trunk of which is some seven or eight miles in length, and thirty or forty feet in width, by eight or nine in depth, as far as we travelled along the bank of it. At 8 A. M. came on the banks of the water-course, and at 10 crossed the *May-ping* at a ford of considerable breadth, but at this season only reaching to the poney's saddle. On the *Zimmay* side found some officers waiting to conduct me to the *zayat* or *tay*, which we found to be a rattle-trap of a wooden building, forty-five feet by twenty-five, surrounded by an eight feet verandah a foot lower, with four small rooms on each side, in which the people were housed. These buildings shut out every breath of air; which, as the thermometer was 103° at mid-day and 80 at 8 P. M. was any thing but comfortable. The floor was of split planks laid ou without rails or fastening, and as the people crowded up to look at me, the rattling was unsupportable. As I would get no relief from this annoyance by complaint, I was ultimately obliged to drive them down by force; after which they did not venture further than the steps of the *zayat*. The *zayat*, which is about a quarter of a mile from the town, was surrounded by drunken holiday-making people, singing, and hallooing, and shouting till about 12 o'clock, one of whom came close to the *zayat* and abused us. My people pursued him to a neighbouring house, which I was just in time to prevent them breaking into, and I denounced the occupier to the police in the morning.

“On the 16th, the brother-in-law of the CHOW-HOUA and some other officers paid me a visit of ceremony, bringing a present of rice, sugar-cane, &c. with the gratulations of the Tso-BOA at my arrival, and expressing his and their good-will towards the English. They remained about an hour. Before they left, I complained of the annoyance of the rabble, which they promised to remove. The forcible ejection of the rabble yesterday left me at tolerable peace to-day till the evening, when the wife of the Ken-Toung Tso-BOA came to visit me, and such a number of women came under her protection that the floor of one of the passages gave way with them, but fortunately no accident occurred. I hear nothing hut complaints on all sides of the rascality of the cattle-merchants employed by the contractor to buy his cattle. They are old boat lascars, discharged peons, and thieves from the jail, to whom he has had the folly to entrust more money than they ever saw before. Considering themselves rich, they have bought wives and slaves, and dissipated part of the money; and as they cannot return to *Maulamyne*, they sell the property at what they can get for it. Some of them have picked up the Shan language, and act as interpreters to strangers arriving from the coast, get their property into their hands and appropriate the proceeds. The presents they are enabled to make at this (to them) cheap rate, and the knowledge of the language, sets them above the fear of punishment. On the morning of the 17th, in consequence of my complaint of



yesterday, a person was sent out to keep the people from coming up in the *zayat*, and a writer came to hang up a notice to the same effect. I have been left to myself all day. The poor woman into whose house the person who abused me on the night of our arrival ran for shelter, came to-day to beg my intercession. She is a stranger from *Bankok*, and, as she could not point out the offender, is threatened with a fine. As they have shewn a disposition to punish the person, I promised to intercede for her.

At 10 A. M. on the 18th, CHOW NE NAM MAHA NEUT and some other officers came out to conduct me to the Tso-BOA's house. They proposed that I should halt for some time at the court of justice, which was soon given up on my positive refusal to do so, and I proceeded in the same order as I had done at *Laboung*. The Tso-BOA came in after a few minutes and seated himself on a cushion at the foot of the *zoyabollen*; I was seated immediately in front of him on a pretty large Persian carpet with pillows. I inquired after his health, age, prosperity, &c. and explained the purport of my visit to be a wish on our part to cultivate his friendship and open the gold and silver road, that, as at *Laboung*, we might exchange our superfluous produce to mutual advantage, &c. &c. He replied, that to all proper subjects of traffic there was no restriction. I said I was glad our customs agreed, and hoped that there would be now no further objections to the export of cattle and buffaloes, which was what we principally wanted from this country. The CHOW-HOUA, who as at *Laboung*, transacts all the business, and who is said to be the only one opposed to the trade in cattle, objected on the score of the great mortality which sometimes takes place among them, in which case I observed the price would rise, and still only surplus cattle would be sold; that I did not urge him to give the people an order to sell, but permission to do so. He made some objection, half expressed, on the score of fear of the *Nats* or presiding spirits of the country. I pointed out the fact of their being sold to the Red Careens, to which he made no reply; but, Buddhists as they are, the question of the life or death of the animal has never been mooted by any one except CHOW-TCHE-WEET in transferring the sin of selling to the CHOW-HOUA. The Tso-BOA then heard the letter read, ordered in some sweetmeats, desired us his children to continue our business, and retired on plea of weariness. The hall I was received in, is a brick building about 100 feet by 50; the walls painted with an extraordinary jumble of clouds, trees, temples, &c.; on the window-shutters natives of different countries in the act of salutation. Among others I observed two Europeans in the costume of the time of George II. Below the windows a sea with boats and the white umbrella (emblem of royalty) of seven tiers of coarse cotton cloth, diminishing in size to the top (like an old fashioned dumb-waiter,) was fixed above the *zoyabollen*. I did not ascertain what chiefs were present, but the Tso-BOA and the CHOW-HOUA were the only ones with whom I had any conversation. The Tso-BOA is 80 years of age, but looks much more hale and robust than CHOW-TCHE-WEET. He was raised to the Tsoboaship by the king of *Bankok*, from his merit as a soldier, though he can neither read nor write,—a very unusual thing in this country.

“On my way to the fort this morning I called on CHOW-HOUA, and found him as much disposed to be friendly as he had been the reverse on the two former occasions. He agreed to the trade being perfectly free and unrestricted.

No duty will be levied on imports. The duties on cattle to be as at *Labong* :—elephants one tical ; horses free of duty ; muskets and slaves are alone prohibited being taken out of the country ;—offenders from *Laboung* shall be given up, and the people of this district harbouring them punished. He said our presents of muskets was a certain mark of friendship, and that he intended to send fifty cattle to the Commissioner ; and as I could not take them with me, he requested that I might arrange to leave some one to take charge of them.

“ 24th. I went to take leave of the Tso-BOA, who received me nearly alone in an outer hall ; gave me the letter for the Commissioner, and was most friendly in his professions. His house consists of three wooden ranges of about fifty feet wide, (their length I could not see,) the brick hall standing across the ends, in which I was formerly received, and the small one in which I saw him to-day. Soon after my return to the *taydau* or *zayat*, CHOW MAHA NEUT came with a message from CHOW-HOUA to set my mind at ease regarding the cattle and trade generally ; that every facility should be given to purchase cattle, and the trade should be perfectly free and unrestricted ; that it was not becoming to be bounden by promises, but that we would see hereafter the strength of their friendship. He regretted that he had not seen me on my last visit, that my stay this time was so short, and requested I would return for a longer stay next fine weather, &c. &c. I left *Zimmay* at half past 4 P. M. on the 24th, and reached *Labong* at 10. The walls of the inner town of *Zimmay* are 800 fathoms from east by west and 1000 from north to south, all of brick, and a ditch and rampart all round. The outer wall, which reaches from the north-east to the south-west corner, is circular and upwards of 1800 fathoms, one-half of brick, the other of wood with a rampart round the brick part, and a ditch surrounding the whole. The ditches when in repair, (which they do not appear to be now,) can be filled from the river. The town is situated four or five miles from the eastern foot of the *Bya-tha-Dyk*<sup>104</sup> hill, the highest in the range, and between it and the hill is another small single-walled fort about the size of *Laboung*, called *Moung-Soon-dank*<sup>105</sup>, (city of the flower garden.) All the houses in *Zimmay* above the poorest of the people are surrounded by compounds fenced in, in which are cocoanut, arica, betel, bamboo, and other useful trees, with a great variety of flowers and flowering shrubs, which are watered by a stream of clear water brought from the hill. The valley in which this town and *Laboung* both stand, is little less than one day from east to west, and little more than three from north to south. Much of the valley near the town is under cultivation, which is all prepared by irrigation, and the grain is transplanted, yielding upwards of one hundred-fold, though the fields are never left fallow.”

Dr. R. quitted *Laboung* on the 29th. On the 9th May the rains set in, and continued almost without intermission during the remainder of his journey. He arrived at *Maulamyne* on the 21st May, suffering greatly from the exposure ; most of his followers ill, (several of them died shortly after,) and the elephants completely knocked up by the difficulties of the road.

#### DR. RICHARDSON'S THIRD VISIT, 1835.

Dr. R. was directed on this occasion to extend his visits to some of the other Shan States, and also to the tribe of Red Kaffens<sup>106</sup> on the

west bank of the *Salween*, who, sometime previous, had sent a message to *Maulamyne* to say they should be glad to see an European officer in their country, and to open an intercourse with us.

Dr. R. started on the 29th December, and arrived at *Laboung* on the 26th January, 1835. Here he found that his old friend the "CHOW-TCHE-WEET," or "Lord of Life," was dangerously ill. The old man received him, however. Dr. R. says—"On entering his house, I found the chiefs and elders assembled and a curtain across the room. After some conversation, chiefly regarding the war to the eastward and the great blessings conferred on this country by our occupation of the Provinces, the curtain was drawn aside, and showed us the poor old man evidently on his death-bed, with his children and grand-children around him. He spoke but little; said he was glad to see me again, and handled one of the muskets I had brought with me to present to him."

After staying a few days at *Laboung*, Dr. R. proceeded to *Zimmay*. Here he had some long discussions with the CHOW-HOUA of that place relative to some impediments and restrictions he had placed on the trade in cattle, and to some late attempts on the part of the frontier Shan petty chiefs to levy tribute on the Kayens residing on our side the boundary river. These matters were, however, amicably adjusted, and much kindness and attention were shown him. It was the period of an annual festival, for which he was urgently pressed to stay. He says—

"One of the amusements at this festival was the letting off of large rockets—each rocket being honored with some name, and supposed to appertain to some chief or great personage. One was appropriated to me; and my coolies and servants being joined by a number of *Maulamyne* traders then in the place, who entered into the spirit of the thing, my rocket was well attended to the ground with dancing and singing, to the delight of the Shans, to whom Burmese music and dancing was quite a novelty. The rockets were all of wretched construction, but it so happened that mine performed its duty in a style infinitely superior to any on the ground; and such is the superstition of these people, that I feel confident this incident has made an impression on their minds of the superiority of our nation which will not easily be effaced."

Here Dr. R. met a large portion of the annual caravan of Chinese traders, of whom he says—

"At *Zimmay* I found the caravan of Chinese traders, consisting of 200 mules and horses. Three hundred more were said to be at *Moungnan*, where cotton is abundant. They had arrived in the country a considerable time before me, and were preparing shortly to return home. I had a good deal of conversation with the two heads of the caravan, who seemed to be intelligent, enterprising characters. They said they had long entertained the idea of visiting *Maulamyne*; and now that they were invited to do so, and were assured of protection, they would

undoubtedly do so next season ; the present one being too far advanced to allow of their increasing their distance from home. They requested that an interpreter should meet them at *Zimmay* ;—and from their repeated requests that he should be at *Zimmay* in all November, in order to accompany them down, I feel convinced these people will be at *Maulamyne* before the end of the year. With the chiefs I found no difficulty whatever in obtaining their consent to their passing through the country : no objection was ever hinted, nor have I reason to expect that any will hereafter arise.

“ The imports by these caravans consist of copper and iron vessels, silk, (raw and manufactured,) satins, gold and silver thread and lace, musk, walnuts, carpets, and vermilion. They export from the Shan country cotton, ivory, skins, horns, &c. &c. From the information which I could collect, the caravan assembled at *Moungkoo*, distant from *Zimmay* about two months’ journey. Their goods are conveyed by mules, and they would appear to travel rapidly ; as they asserted they would not be more than twelve days from *Zimmay* to *Maulamyne*\*. They allow nothing to detain them on their journeys. If a man fall sick, or is disabled, he is left behind ; and if one dies, they do not even stop to bury him, but cover his body with a cloth and continue their route.”

Dr. R. left *Zimmay* on the 23rd February for *Lagon*,<sup>107</sup> a town he had not hitherto visited. The following is his route :—

“ 23rd. Direction S. 65 E. Distance, 5½ miles.

“ Started at 1 P. M. and reached *Paboung*<sup>108</sup> at 3. 30. This is a small village of only twenty-four houses, but the Thongyee, or head-man, has altogether about three hundred houses under his jurisdiction. The road was level, through paddy fields, intersected by small slips of jungle.

“ 24th. Direction S. 20 E. Distance, 16½ miles.

“ Left *Paboung* at 7. 35. At 9 crossed the *May-quang*, which runs past *Laboung* and falls into the *Moyppiny* to the southward. At 11. 40 we halted at the village of *Ma-wan-tchay*<sup>109</sup>. The road throughout the day was good and pleasant ; considerable cultivation, and the inhabitants numerous. The people of the village where we have halted are all captives from *Mein Neaung*, who, never having seen an European, were very curious, but, at the same time, exceedingly civil and hospitable, having provided a dinner for my followers. An old man of the village remarked to me, after we had been encamped a few minutes only, that a Burman chief, travelling as I was doing, would ere this have tied up and flogged some of them to shew his authority, and that neither he nor his father had ever heard of a person travelling through a country merely to make friends. He wished I would open the road to his native place of *Mein Neaung*.

“ 25th. Direction S. 20 E. Distance, 13 miles.

“ The road to-day was through a teak forest and over several small hills lying from a few yards to a mile distant from each other. Our guide to-day was a Doctor, who was quite an amateur in his profession, and spread out all his medicines under a tree and began prescribing gratis for our people. He had in his store of medicine the thigh-bone of a dog, the jaw of a monkey, the vertebræ of

\* A small party of them have since arrived at *Maulamyne* in company with the men sent to meet them. They made the march in 15 days and express themselves satisfied with the market here.



a fish, part of a grinder of an elephant, the fore-tooth of a rhinoceros, some bone of a turtle, and two or three pieces of broken china. The rest of his collection consisted of little bits of sticks, and roots of all colors, to the number of two hundred and eighty-one, (I had the curiosity to count them,) the names and virtues of all which he professed to show. Not the least curious part of the collection was his mortar or substitute for one; it was a turned wooden bowl ten inches in diameter, with a handle to it, and inside opposite the handle a piece of coarse flinty sandstone fixed with lac about four inches square, and sloping towards the bottom of the bowl: on this the various articles are ground down, in sometimes a quart of water if the patient is very ill.

"26th. Direction S. 70 E. Distance, 16 miles.

"The road to-day was very tortuous and in some parts steep and rocky. No inhabitants or cultivation were to be seen.

"27th. Direction East. Distance, 15 miles.

"Started at 7 A. M. March lay along a good road in the jungle till 8.30 when we passed a last year's clearing with buffaloes and other signs of inhabited country. At 8.45. crossed the *Maytan*<sup>110</sup>, a considerable stream in the rains, now not ankle-deep, and on the eastern bank at *Ban-hang-sat*<sup>111</sup>, a village of some size;—found they had received orders to have breakfast ready for the people, which was fortunate, as there was not rice for half of them at starting. Here we halted fifty minutes under the tamarind trees, whence two hours marching brought us to *Boutue*,<sup>112</sup> on the banks of a stream of the same name about the size of the *Maytan*. The road has been good throughout and the country level. The people of this village have orders to supply us with every thing, and take us into the town to-morrow; they brought out dinner for the people soon after our arrival,—rice and vegetable stews, ready cooked, each house furnishing a portion, as is the custom in Burmah. These were brought out by the women of the village, young and old; the former, as usual, uncovered to the waist, and finer busts are not to be found in the world, and many of them fair as Europeans.

"28th. Direction S. 70 E. Distance, 4 miles.

"Reached *Lagon* at 8.20 A. M. There are three towns close together, two on the north and one on the south side of the river *Moy-Wang*,<sup>113</sup> in the last of which most of the chiefs live. The river between the towns has a course nearly east and west, and, dividing, forms a little sandy island nearer the south side, on which sheds had been prepared for our reception. The whole breadth of the river is about one hundred and forty-seven paces, but at this season there are only two small streams near each bank about knee-deep. During the rains even, it is seldom full, and consequently for the greater part of the year is not navigable for boats of any size. Neither is it favorable for purposes of irrigation, and as the rains are often insufficient, it is a far less favorable site for a town than *Laboung* or *Zimmay*, though containing an equally numerous population. As the trees in the town and neighbourhood are luxuriant, and the soil generally appears productive, it is probably the fault of the people themselves that provisions are scarce."

The following are Extracts from Dr. R.'s Journal during his stay at *Lagon*.

"3rd March. Visited several of the chiefs to-day. They all expressed themselves most friendly to us, and spoke openly of a different feeling existing at *Zimmay*. As my visit was entirely conciliatory, I avoided the subject, merely saying, that we were grateful to our friends, and that I believed the general feeling of the people of *Zimmay* was friendly towards us, in which they agreed, and said they saw I was aware where the bad feeling lay. I spent several hours with the several chiefs, and altogether passed a very pleasant day, owing to their kind reception and the absence of all ceremony.

"4th. Went over to one of the towns on the north side of the river to visit a chief residing there. The whole of the town is enclosed within old walls, the river face of which is mud, the remainder brick, but in a very rickety condition. The paths from one house to another, which are all far apart, are more like the paths in a common village than the streets of the town.

"8th. There are fewer elephants here than at *Zimmay*. The king of *Siam* called for a return of these animals last year, when three hundred were found here and near one thousand at *Zimmay*, large and small. I learn that there are no taxes on specific articles here. Every cultivator, without exception, at the close of the harvest, pays into the Government granary a quantity of grain equal to what he may have sown, and each house pays half a tical of coarse silver on account of sacrifices to the *Nats*, or protecting spirits of the country. These sacrifices are another name for public feasts as the buffaloes, pigs &c., together with the spirits that are provided, are consumed by the people. The land is the property of him who clears it, and any one may cultivate unoccupied land, provided he pays the accustomed contribution to the public granary. The person so clearing and cultivating land may dispose of it in any way he likes, and cannot be arbitrarily dispossessed of it by the chiefs, as in *Burmah* the people are glad to place themselves under the protection of some chief and become followers of his family. They work for him, and are often sent by him on trading excursions, receiving occasionally a portion of the profits.

"10th. Received a visit from No. 1 wife of the CHOW-HOYA, accompanied by her two daughters and several female attendants. She says she will be obliged to leave her daughters behind when she accompanies her husband to *Bankok*, (whither all the chiefs are bound, on the occasion of CHOW-TCHI-WEET'S death,) as the king might take a fancy for one of them. This, she said, would be all very well for a year or two, after which she would be discarded and neglected, and then her life would be one of misery."

Dr. R. left *Lagon* on the 10th March, and arrived at *Laboung* on the 13th, a distance of 44 miles ; direction N. 70 W.

"Here I found the chiefs of all the associated States, assembled to perform the funeral rites over the body of CHOW-TCHI-WEET, the acknowledged head of their family. I had to enter into long and disagreeable discussions relative to the three elephants which had been stolen at *Maulamyne* on several occasions, and which had been traced to *Laboung* and the thieves discovered. The difficulty arose from the thieves being proteges or dependents of CHOW-HOYA of *Laboung*, who alone opposed restitution of the property, or the punishment of the thieves. I at last threatened, that unless I could report that this business was satisfactorily settled, it would be referred to *Bankok*. This alarmed them

as, under present circumstances, they must deprecate any reference against them to the king of *Siam*, who might take advantage of the opportunity to place a stranger in the situation of the deceased chief. Still the settlement was put off till the arrival of the chief of *Zimmay*, who had returned to his town for a few days, and I was obliged to quit without knowing the result of their deliberation. I learnt, however, by a messenger who met me on my return from the Red Kayens, that the affair had been terminated to the satisfaction of the owners of the elephants, who had accompanied me from *Maulamyne*.

"At this assembly the chiefs seemed on very bad terms with each other, and their deliberations were conducted with much acrimony, and on one occasion with personal violence. The *CHOW-HOUA* of *Laboung* appeared to have given general dissatisfaction, though he again was full of complaints against the others. This mutual bad feeling was shewn in the inditing of the letter brought by me from the chiefs of *Laboung*. I was informed by one of them, that when it was read to *CHOW-HOUA*, he ordered his name to be struck out without assigning any reason. When I called on him to bid him farewell, I asked him why he had done this. He begged me to be assured that no disrespect was intended by it; that the letter had been written without, in the least, consulting him; and though it was a very good letter, yet he declined to have his name in it under such circumstances. He then went on to say, that the death of the old man, whose obsequies they were then celebrating would, he feared, be the cause of much evil and misery to the country, owing to their own dissensions.

"Having at last obtained the letter, and having been furnished with an order for guides from the frontier to the Red Kayen country, I left *Laboung* on the 25th March."

The route usually travelled from *Laboung* and *Zimmay* to the country of the Red Kayens on the west bank of the *Salween*, is through *Mein-loon-gyee*, towards which Dr. R. bent his course and arrived on the 31st March. Here he remained one day in order to procure rice and other articles for himself and followers during the remainder of the journey, as no villages would be fallen in with for some days.

"April 2nd. Direction N. 15 W. Distance 15 miles.

"The road lay generally along the banks of the *Mein-loon-gyee* river, crossing occasionally from one side to the other and through a magnificent teak-forest.

"3rd. Direction N. 39 W. Distance, 20 miles.

"The road much the same as yesterday's march. Crossed the river twelve times during the day with the water sometimes over the saddle flaps.

"4th. Direction N. 75 W. Distance, 17 miles.

"Left the *Mein-loon-gyee* to the eastward, and proceeded along a road of much more rugged character, up a small stream which we crossed seventy or eighty times. The hills are here more close and precipitous, but the tops of many of them are cleared for grain cultivation, the only sign of the country being inhabited. Met fifteen elephants returning from the country we are about to visit, with stick-lac.

"5th. Direction S. 80 W. Distance, 12 miles.

"Crossed the highest part of this range at 7 A. M. from whence the water

runs westward into the *Salween* and eastward into the *Mein-loon-gyee*. The road to-day has been the worst we have travelled ; the hills very trying to the elephants, and the stony banks of the streams to the horses' feet. Met two poor little children recently purchased from the Red Kayens ; one for six bullocks ; and the other, a very interesting child, about 7 years of age, for 10.

" 6th. Direction W. Distance, 11 miles.

" First part of the road over a steep hill ; remainder over low land covered with grass, formerly cultivated.

" 7th. Direction W. N. W. Distance, 15 miles.

" First part of the road the same as the last of yesterday's, along low reedy ground, following the course of an inconsiderable stream. At 8. 30 came to a pass between two hills, which, in case of attack, is defended by the Kayens by securing large stones with ratans and bamboo work on the tops of the hills ;— the ratans are cut, and the stones roll down on the invaders. It is about one-fifth of a mile in length.

" 8th. Direction W. N. W. Distance, 12 miles.

" The country more level, with some occasional clearings and a few houses. The jungle to-day was unusually alive with pheasants, pea-fowl, partridges, &c.

" 9th. Direction W. Distance, 14 miles.

" The country of the same character as yesterday. Halted on the banks of the *Salween* about four hundred yards wide, running a rapid stream in a narrow valley or ravine, except at the small plain where we are encamped, and another on the opposite side on which stands the village of *Banong*<sup>108</sup> or *Tougong*, consisting of about twenty-five houses, having the appearance of a common Burman village. Met 20 or 30 bullocks to-day with stick-lac and eight slaves en route to the Shan country, making in all fifteen since leaving *Laboung*. One family of four were bought for ten bullocks, the father and mother and two children two and three years of age. There are some others for sale at the village. In the evening the son of *PHA-BHO*, one of the chiefs of the Red Kayens, an exceedingly dirty, stupid-looking lad of about 18 or 20, came over with a relation who is headman of the village. They appeared to have some difficulty in making up their minds who was the proper representative of the tribe. At last it was decided that *PHA-BONG* was too young and comes to *PHA-BHO* to consult on state matters ; and that as *PHA-BHO* was the person who sent the message last year, it is determined I shall go to him. He resides three days' journey on the other side of the river. There have been about fifty or sixty Kayens about my tent this afternoon, (none of them appeared to come avowedly as the young gentleman's attendants ;) they do not differ at all in personal appearance from the common Kayens of the hills, except that they are perhaps less good-looking. Their dress consists of a pair of short trowsers of generally red (particularly the chief's), colored cotton of domestic manufacture, coming about half way down the thigh, and every one had either a piece of book muslin or an English cotton handkerchief round his head.

" 10th. Waited some time for the boats. At last the young lad of yesterday crossed over, and on my interpreter complaining to him of the delay, he said the Kayens were never in a hurry. He succeeded, however, in getting them at 12 o'clock, and every thing was crossed over that evening. We were in apprehension of a scarcity of provisions, as the old head-man of the village declined



supplying any. PHA-BHO's son however, procured some rice ; as to eggs or fowls, they were out of the question.

“ 11th. Direction N. W. Distance, 9 miles.

“ The road to-day was either rocky or covered with round water-worn pebbles, and lay among low rocky hills scantily covered with vegetation and stunted scattered trees. PHA-BHO's son was engaged in eating a buffalo, which he had sacrificed to the *Nats*, and did not accompany us. He sent a guide, however, and is to follow us to-morrow,

“ 12th. Direction W. N. W. Distance, 15 miles.

“ First part of the road rocky and bad as yesterday, but the latter part more level and less stony. Passed one or two small villages, around which was a little of the most slovenly cultivation, chiefly *cholum*. Halted at the village of *Banloe*,<sup>109</sup> of about thirty houses under the nephew of the last PHA-BANG (a chief's title). At this village there was a poor woman brought in two days ago, from a party of about three hundred people seized by PHA-BHONG from the village of *Tongpak*<sup>106</sup> (Burman Shans) which they left a smoking ruin a few days ago. The story which she told in the fullness of her grief is replete with all the horrors that are attendant on such diabolical scenes. The Kayens attacked the village, it appears, with bravery, (but the Shans are cowards,) and her husband was cut to pieces in her arms, and she kicked by the savages from his bleeding body. Many of the Kayens were killed, but they succeeded in carrying off all the inhabitants. She saw her two daughters in their rapid flight, but was separated from them two days ago. The respectable individual at the head of this village took her as his tenth of the captives taken by his people. She does not know where her daughters are carried to. What adds to the helplessness of her situation, is that she is far gone with child, and is the only one of her village here.

“ 13th. Direction N. W. Distance, 14 miles.

“ Reached PHA-BHO's residence (called *Dwon Talwee*)<sup>110</sup> to-day after travelling over a succession of hills on the worst possible road.

“ 14th. Sent into the village to say I wished to-day to deliver the letter and presents from the Commissioner, and PHA-BHO requested me to come when I felt inclined to do so. I accordingly went in after breakfast about two hundred yards to the village, which consists of seventy houses in the worst Burman style, the chief's much the same as the rest, but made of wood split and fastened together by wooden pegs. There is a sort of open verandah, if it may be so styled, without a roof, at which we arrived by a rough sort of wooden ladder of six or eight steps, all of which were loose. Here we stooped under the roof which reaches within four feet of the verandah or platform of loose boards, and two paces brought us into the door of his Majesty's mansion, from which one step landed us to the royal presence. This, however, I did not for some time discover, as the door at which I entered was the only opening in the room, or rather house, except the crevices between the boards, so that for some minutes after entering it was perfectly dark. I could absolutely see nothing but a little bit of fire that was in the middle of the floor. I seated myself on a carpet, and the people groped their way in with the presents, and after sitting a few minutes I was able to distinguish by degrees objects in the room ; not, however, so as to have recognised the old gentleman if I had met him ten minutes afterwards

in the day-light. I told him I had come as he had requested, and as the Commissioner of *Maulamyne* had promised last year, from whom I had brought a letter and presents, and wished to open the gold and silver road between us, and be friends with the Kayen nation, &c. &c. He gave me an opportunity of talking, as he said nothing for a quarter of an hour. At last he requested to have the letter read and explained, which was done. He then said his object in requesting an officer to visit him was to know if the English would form an alliance with him,—for the purpose of making war on the Burmans! I declined the honor of a warlike alliance, but told him our views were all peaceable, and that we never made war unless injured, when vengeance was instantaneous. I begged his protection for our traders, &c. &c. &c. He said if we would not make war along with him, he must make friends with us, nevertheless; but that war with the Burmaus was his object in asking a visit, and that he would send for some chiefs from *Ngoay Down*, and make known my visit, and the wish for a friendly intercourse. He promised his protection to traders, and was as friendly as possible. By this time I could see the size of the room—it was about thirty feet by forty, and a bow end where the door entered. The fire was in the middle of the room on a little square place insulated from the floor, being raised an inch or two from it and supported from below, the roof splendidly varnished with soot. The old man was alone when I went in; the room was, however, soon crowded, but their whole demeanour was civil and respectful,—very different from what the *Zimmay* chiefs wished me to believe. In the evening the old man's factotum came out to beg me to delay six or eight days, which I declined, and begged to be dismissed on the 17th. This old man, who is an up-country Shan, after giving a splendid account of the numbers of the Kayens and size of their towns, said some of their towns had four hundred houses, and the country was six days' journey from north to south, and four from east to west. PHA-BHO discourages men-catching, but the people pay no regard to his counsels. There is something like law amongst them; for, on inquiring the cause of the firing of muskets that took place this morning, I was told it was a robber who had been ransomed by his friends for two *ketsees*<sup>111</sup> (copper drum, a sort of gong) and 100 tickals coarse silver. Found our height by the thermometer to-day to be 1021 feet. The flat on which we are encamped, and on which the village is situated, is about 610 paces wide and 600 or 650 long. There is another about 600 feet higher of the same size, and still further up is a third platform 2049 feet above the sea and about two miles square, perfectly level, with rich soil, all under cultivation, watered by two streams which rush down the perpendicular face of the mountain from above and irrigate the two lower platforms. The mountain is of limestone, and its steepest acclivity appears to be on this side, though the presence of the beautiful stream on this face would indicate the country.

“ 15th. Had a visit from the old chief to-day, a dirty shabby old Kayen when seen by day-light. The only indications of his chieftainship were a gold sword and a silver betel-box, both of which he carried himself, and his only attendant was the old Shan mentioned yesterday. He was as silent as before for some time. He at last began to speak, and continued talking for about an hour of the origin of the human race, to prove what I had said (on his questioning) that the English were the most powerful nation in the world, to be incorrect, or at

least uncertain. The pith of his story was, that we were all originally descended from PHA-BEE, a lady who lived at *Ava*. Who our other venerable progenitor was, he did not know, or how the lady happened to come into the world : however, she had three sons, the elder the father of the Chinese, the second of the Kulas (all people not Chinese, Shans, Burmans, or Kayens), and the third of the Kayens. Of the country from which these ancient gentlemen obtained helpmates, he was ignorant. This story was altogether imperfect, and the interpreter a wretched one. However, there is a pagoda some days from this to the northward, on which no nation has yet appeared with sufficient power to put the *Tee* <sup>112</sup> or ornamental covering, on the top ; but there is to be a great feast and gathering of all the nations to take place, which he expects every day to be called to attend, when this will be achieved, and a *Natthamee*, or female spirit, will descend, to whom the Chinese, Kulas, and Kayens will each believe their claims equal, and will fight till they are up to the knees in blood. The demi-goddess will then inquire what is the matter. On its being explained, she will end the contest by espousing the chief who can *draw her sword* : it will then be known which is chief amongst nations, till which time he will not believe that we are much more powerful than the great nations named above, especially the Chinese. The magnificence of my tent and brass-bound bullock trunks had, however, their weight with him. He did me the honor to remain four of the longest hours I have spent amongst many very protracted ones in my present mission. He, however, as an equivalent, promised his protection to traders from *Maulamyne* and to people (Chinese included) from the northward, but was afraid they would not find provisions, which will be somewhat difficult, even if he has sufficient influence with his savages to prevent their molesting them. Some of our traders from *Maulamyne* came in to-day (ten) who had gone into the Shan territories subject to *Ava* to the north-east, where they had disposed of their cotton goods to some profit in exchange for horses. They met the Chinese traders who annually visit the town of *Mank Maie* <sup>113</sup>, (which is only four days' journey from this,) who had expressed a wish to come to *Maulamyne*, and probably would accompany any of our people who may be there in proper time next year, unless deterred by the terror with which these detestable savages have inspired their neighbours, though I am convinced they are equally despicable and detestable.

" 16<sup>th</sup>. Several of the head people came out to the tent this morning, and in the evening I went to take leave of the head-man. They were vociferously discussing the propriety of returning a present to the Commissioner. As soon as I could obtain a hearing, I repeated all I had previously said about the traders, and was begged to explain to the traders coming here that they must not take forcibly what did not belong to them ; they promising to do all on their part to protect them if their conduct was correct, but could not be answerable for offences beyond their jurisdiction. They would tell them where they might go with safety ; if they went beyond that, it must be at their own responsibility. The discussions were renewed more loudly than before, and I took my departure with a head-ache, partly from the noise, partly from the vile smell of the house. As the grand distinction between the chief and others is his not eating rice, the half of the room was filled with yams, some growing, some putrid and highly offensive. After I had returned some time, the old Shan came out and said, the chief wish

ed to know distinctly if we considered him our debtor for the things I had given, as he feared it might be brought against his children or grand-children ; which is by no means a groundless fear amongst themselves, for I saw on my first visit to *Zimmay* a little child who had been seized and sold by a creditor for a debt contracted by his grandfather for a gong. I assured him his fears were perfectly groundless, and explained what was usual in other countries. He wished me to remain tomorrow, on the chance of his getting a horse to return for the presents. As we have the greatest difficulty in getting—in fact cannot get—rice, and should we be caught by the rains on this side of the eastern hills, we shall be obliged to halt without provisions till they are passable, I intimated my positive intention to start with the moon-light early in the morning to save the elephants crossing the hills in the heat of the day.

“ 17th. Last night at 11 o'clock the old Shan came out according to his promise, bringing a letter for the Commissioner written on two shabby leaves of an old Burman black book, and a little pony, for which my servant had been bargaining in the course of the day ; its price was about forty-five rupees. I believe a man from *Maulamyne* who was robbed and is now seeking justice here, was the writer of the letter ; and as they have no written character of their own, it was written in Burmese.”

Dr. R. quitted *Daung Talwee* this day, and arrived at *Maulamyne* on the 10th May, having returned through *Mein-loon-gyee* by the route already described. He thus sums up the result of his last mission :—

“ I need not descant upon the great importance of opening a market with the frontiers of *China* for British goods by means of the caravans of Chinese traders. It is probable that on the first visit of these people to *Maulamyne* their numbers will be few, but when once aware of the safety and freedom from all vexations and exactions with which their visits will be attended, and of the extensive market existing for their goods, I think there can be no doubt we shall see them here in future years in great numbers. I learnt from the people, and also from other quarters during my travels, that no difficulty would exist in our traders visiting the frontier towns of *China*. The Chinese asserted there were no guards and no restrictions in their towns, and a person of some rank at *Labon* pressed me to accompany him next year on a trading expedition in that direction. I cannot but think this subject is worthy the consideration of Government ; and should any thing of the kind be deemed advisable, I should be most happy to offer my services.

“ An extensive opening for our inland trade has been made by securing the good-will towards us of the Red Kayens, and it is possible that the intercourse with these people now commenced may lead eventually towards their civilization, and that our influence with them may hereafter be successfully exerted in putting an end to their system of kidnapping and selling their neighbours which now forms their, I may say, sole occupation. I learnt that from three to four hundred unfortunate beings are annually caught by these people, and sold by them into perpetual slavery. I met many of them on my journey,—some just purchased, others on their way to be sold.

“ The kind feeling of our north-eastern Shan neighbours towards us, have been increased by my late visit. The mixture of firmness and conciliation which



I had it in my power to exhibit towards them on the points discussed, has tended to convince them that we are firm and consistent friends, not desirous of aggrandizing ourselves at their expence, but at the same time not to be imposed on or trifled with."

### III.—Notes on the Antiquities of Bámíán. By C. MASSON.

*Bámíán* is situated in one of the *Paropámisan* valleys, distant about 80 or 85 miles from *Cabúl*, bearing N. 75 W. The valley is deep, the enclosing hills on either side exhibiting, to a greater or less extent, perpendicular walls of rock, whence their convenience and adaptation for the construction of caves. The rock is called *Mung*, being a conglomerate of small pebbles, sand and divers colored earth, remarkably compact and hard. The length of the valley is about nine or ten miles, in direction from east to west. Its breadth is inconsiderable, but greatest at the particular spot in it, pre-eminently called *Bámíán*, and where the statues and principal caves are found. At this point also the streams of *Súrkh Dur*, and *Júí Folúdí*, by their junction, form what is called the river of *Bámíán*, which flowing eastward down the valley, receives at *Zohák* the waters of *Kálú*, after which winding to the westward of *Irak*, *Bábúlák*, *Shibr*, *Bitch'ilík*, &c. and augmented by their rivulets, eventually escapes from the hills, and passing *Ghorí* falls into the river of *Kundúz*.

The appellation *Bámíán* may perhaps be equivalent to high region in contradistinction to *Damián* or *Damán*, the low region, or that at the skirts of the hills—"Bám" signifies "roof," and when it is remembered that Asiatic roofs are flat, as are in general the summits of the mountains in this part of the country, we are at no loss to account for the name, once probably universally applied to it, though now retained by a particular locality;—and when we further consider its elevation above the surrounding regions, we may admit the figurative and emphatic interpretation of *Bámíán*, as afforded by some of the inhabitants, who render it the "roof of the universe."

The mountains among which *Bámíán* is situate, are no doubt those designated by the Greek historians and geographers *Paropámisus*, as opposed to the true Indian Caucasus or *Hindu Kosh*, from which they are distinct. The term has been cavilled at, but without justice. It was no creation of the Greeks, but the native name for the hills; nor need we doubt this, when we find it made up of *par* and *pám*, signifying "hill" and "flat." *Paropámisus* may therefore be translated the region of flat summited hills, and is a term peculiarly appropriate to the countries on which it was conferred. Know-

ing the etymology of *Paropámisus*, we learn that of PAMIR, the lord of hills.

The principal antiquities of *Bámíán* are its idols and caves, which have manifestly a connection with each other,—the castle of *Zohák*, so called—and the remains of the city and citadel of *Ghúlghúleh*.

The evidences of *Ghúlghúleh* are numerous and extensive, proving that it must have been an important city. Refraining from speculation as to its origin, we know from authentic history that it was destroyed by GENGHIZ KHÁN in 1220, A. D. The natives of *Bámíán* have a tradition, that it was re-edified, and again fell into decay—which is probable, there being many Muhammedan tombs referring to it, which have a less antiquity than six centuries, if painted glazed tiles to be seen in them, were confined to China, until the era of GENGHIZ KHÁN, as supposed by some authors. The most striking of the remains of *Ghúlghúleh* is the citadel or place, the walls of which encompass an isolated eminence.

The fortress of *Zohák*, so called by the natives and by ABUL FAZIL, occurs at the eastern extremity of the valley, where the rivulet of *Kalú* falls into the river of *Bámíán*. We have not inspected it with sufficient attention, to decide upon its character, or to venture to advance an opinion on it, which future research may controvert—we therefore merely observe that, agreeing with ABUL FAZIL as to its antiquity, we differ both from his notion and that sanctioned by tradition that it was a place of defence.

The caves of *Bámíán* are found in the cliffs or perpendicular fronts of the hills on either side of the valley, and on the northern side they uninterruptedly occur for a distance of six or seven miles. At the spot called *Bámíán*, the elevation of the cliffs, being most considerable, there are found the greater number of caves, or *samuches* as called in these countries, congregated as in a focus. Among these caves stand in niches the two large idols long known in Europe, and between them are two other niches, in one of which are the fragments of a former idol, and the other as certainly once contained one. Opposite to these, diverging to the south-west is the valley through which flows the rivulet of *Júl Fóládí*, and eastward of the citadel of *Ghúlghúleh* is a valley stretching to the south—the hills to the north and east of both these valleys are also perforated with caves, and among those of the latter is a large idol inferior only in size to the two superior ones at *Bámíán*.

The idols are cut or hewn in the rock, and have been covered with a surface of cement. They are erect figures, with their hands extend-

ed, and supporting the folds of drapery with which they have been clothed. Their features have been destroyed, by removing one-half of their heads, or as far as the lips, leaving the hinder halves with the ears, enormously large, appended\*.

The work of mutilation was one of some labor, and having been executed with precision, will have been directed by authority, possibly by that of the Arabian conquerors. A subsequent and less systematic mutilation has been practised on the idols, by breaking off their hands, and fracturing their legs, for the merits of which JENGHIZ, TIMU'R, AURANGZE'B, and even TIMU'R SHÁH DU'RÁNNÍ', who are all accused, may dispute.

The idols stand in vast niches formed in the rock, whose sides on a level with the necks of them have been embellished with paintings. These consist of busts and seated figures, both male and female. The niche of the superior idol has on each side a line of twelve female figures, and, what is of great importance, at its summit, over the idol's head, is an inscription, obviously intended to unravel the mystery. The niche in which stands the second idol in importance has no inscription, but on either side has lines of twelve male and female busts, among which is one so valuable that we need not regret the absence of a literal testimony; over the head of this idol is a painted full length female figure. The niches of the other idols are also embellished with paintings.

On either side of the niches are series of stairs, cut in the rock, which conduct to their summits or to the heads of the idols—each series of steps leads to a small square apartment, and these several apartments have been superbly decorated with gilding and lapis lazuli. To illumine these passages, apertures have been cut through the rock towards the idols. We ascended to the summit of the second idol by the passage on the one side, and walking round the hinder part of its head, descended by the steps on the other side. Near the summit or above the lines of paintings the niches have been widened, and on either side has been formed a *takht* or sofa, obviously for the convenience of sitting upon. The superior idol has or had the same facilities of ascent to the summit, but at the time of our visit the lower caves near it were occupied by an unaccommodating Tajik, who had stowed in the passage his stock of provender. We could not prevail upon him by menace or entreaty to open the path, and he evasively affirmed that he had never heard of one. We did not insist with him, relying upon making a further visit, which until now has not happen-

\* See a sketch of them published with Lieut. BURNES' Description, J. A. S. vol. ii. 561.

ed. It is a great point to gain these upper stations, as from them may be profitably inspected the paintings.

Between the legs of the superior idol are entrances conducting into spacious apartments surmounted with domes—and there are many other caves at *Bámíán* which display the dome or cupola:—these we imagine to have been particularly temples. They, in common with all other caves, were covered with cement, in which the lines of moulding surrounding their circumferences, with the ornaments at the summits of the domes, have been formed. The interiors of all of them are of a glossy black color, from the smoke of fires which were or have been kept up in them. Many of the caves at *Bámíán* are remarkable for their dimensions, and have other peculiarities in their form and embellishments. The most curious are found above the superior idol, but in another cliff rising backward; so that in walking from them to the front or south, we reach the edge of the perpendicular wall of rock in which that sculpture is carved. In these caves we saw the names written with charcoal of W. MOORCROFT, W. TREBECK, and G. GUTHRIE! They are gained by an ascent a little to the left or west of the idol.

There can be little doubt but that of the vast number of caves, which do not terminate in cupolas, many were the residences of the priests connected with temples; others may have been the abodes of ascetics or monastic classes; and as we find in *Afghanistan* that the cave is invariably the companion of the sepulchral tumulus, without reference to its nature, or whether it be a tomb or cenotaph, we may suppose the majority of the excavations at *Bámíán* to be of the same character. When circumstances permitted the erection of a tumulus, it became necessary to excavate a cave—and we need not be surprised at the vast number of caves at *Bámíán*, when we have under our eyes the ruins of a large and once flourishing city, or when we consider the spot was a sacred one, possibly the most sacred, of the professors of the then existing religion, and whither the dead of the surrounding regions might, from pious motives, be carried for deposit.

The inhabitants, in speaking of the three superior idols, call them the father, mother and son,—presuming the second in consequence to be a female; but there is no distinction in the figure to warrant the supposition that its sex varies from the others. Of whatever sex the whole may be, there is little reason to doubt but they are of one and the same.

We visited *Bámíán* under the idea of meeting with Buddhist antiquities, but it became evident that they were of another character. The inscription was in characters unknown to us, and continued so



until we were favored by the alphabets of the *Pehlevi* and *Zend* from Mr. PRINSEP, when we ascertained it to be a form of *Pehlevi*. The bust of the king among the paintings in the niche of the second idol, we had found to bear an exact resemblance to the busts on a series of coins constantly and numerous found at *Beghrám*, and which we called Parthian provisionally; but the characters of the legends on these coins were very different from those of the *Bámíán* inscription. At length, however, a coin was found of the same class, with the characters plainly similar—in fact comprising three of those forming the inscription (see Plate XLIV). We now began to suspect we had sufficient evidence to assign the idols of *Bámíán*.

Under the idea that the inscription might be rendered NANAIA, we had ventured to communicate our suspicions to Mr. PRINSEP: should they be confirmed, the idol might be supposed to be an image of Diana or the moon, called by the old Persians NANAIA—but we are not yet confident of the reading; and viewing a succession of idols, it occurs to reflection that they may possibly commemorate a series of sovereigns: and this, even if the reading be allowed; for we find over the second idol which has no inscription, a full length female figure, which may be *Nanaia*, and the first idol has no figure, but a name in its place. We must confess, from the general appearance of the idols, we should suppose them to represent male personages.

The coins referred to are probably of that description marked by Colonel TODD, when he enumerates among his collection “rare ones of a Parthian dynasty unknown to history.” The term Parthian may cease to be applicable, but we doubt whether the kings commemorated by these coins, and, as we suspect, by the idols of *Bámíán*, are unknown to history. We take them to be the *Kiánian* dynasty, whose records, more or less authentic, are to be found in Persian authors; and whose descendants, if their own accounts be credited, still exist in the persons of independent chiefs in *Seistán*. The *Tájiks*, so numerous dispersed over *Afghánistán* and *Türkistán*, and no doubt the more ancient inhabitants of the countries, represent the nation, in olden time, obedient to the princes of this dynasty. For a series of ages, in *Afghánistán* at least, the *Tájik* authority has been superseded; and, within memory, the proprietary rights of the *Tájik* to the soil have been seriously infringed by the encroachments of the *Afgháns*. He preserves few traces of his origin or descent, and as a convert to the uncompromising tenets of Islamism, recollects with horror that his country was once governed by infidels—while, as at *Bámíán*, he resides, and follows the ordinary occupations of life, in the temples,

from whence his ancestors, in all due solemnity, invoked the glorious sun and dazzling hosts of heaven.

Admitting the evidence upon which we ascribe the idols of *Bámián* to the princes of the *Kiánián* race, without prejudice to their individual character, or whether they be idols of *Nanaia* and other deities, or statues of sovereigns—we naturally turn to consider the possible epoch of their construction ; and this, if not absolutely to be fixed, is brought within a certain and comparatively recent period, or one subsequent to the destruction of the Greek-Bactrian monarchy. This monarchy, as JUSTIN testifies, was overthrown by the Parthians, and the fact is perhaps as easily to be credited as that its subversion was effected by the Getæ ; though it must be allowed, that in support of the latter opinion, STRABO is very grave authority, particularly when he enumerates the hordes or nations that effected the subversion, the Asii, Pasiani, Tochari, and Sacarauli. It may be, as SCHEFER hints, that both had a hand in it ; but the conclusion by the same learned author that the Getæ remained in possession, may be liable to doubt, if we recognize the *Bámián* idols to be memorials of the Parthian (qy.) conquerors of *Bactria*. It is proper, however, to note, that about this time, the AZOΞ dynasty, whose coins we have, seems entitled to be considered ; and if that appellation have any connection with the name of the first of the four Getic hordes, as, we believe, Mr. PRINSEP suspects, both JUSTIN and STRABO may be reconciled ; for, according to every appearance, the *Azos* dynasty originated in the regions bordering on the Indus towards its source. At the same time, it must be remembered, that we suggest the possibility only that the *Bámián* idols may refer to the Parthian (qy.) conquerors of *Bactria*. We have remarked that the year 56 B. C. has been mentioned as the epoch of the construction of the idols, (that will be of the more ancient one,) and this epoch might coincide with that of the supercession of the Greek-Bactrian monarchy ; but when this date is quoted as being found in the *Mahabhárat*, either the authority of that work has been carelessly advanced, or the work itself must considerably abate its pretensions to the antiquity conceded to it by some.

We feel repugnance to renounce old and favorite theories, but they must yield to facts. We had plausibly enough given the Greeks in *Bactria* for successors a race of Getic or Indo-Scythic sovereigns, as we conveniently called them ; and we concluded them to be of the Buddhist faith, because we have read that such faith was prevalent in Central Asia about the commencement of the Christian era. Without deeming it necessary to contest the latter fact, in favor of which, indeed, some proof may be adduced, we have gradually, however,

grown sceptical as to that of Buddhist supremacy in these regions ; and the term Indo-Scythic has yielded to that of Mithraic, which may safely be adopted, as clearly indicating the religion of the ruling powers, while it affects not the question of their race or descent. It may be observed, that the later antiquities in *Afghánistán* and the *Panjáb*, or in the countries along the course of the Indus, are apparently mixed Mithraic and Buddhist ; nor is it improbable that the two systems, if they were really generically distinct ones, should have been blended in the limits to which both extended, and were both met—it being considered that Buddhism will have been propagated with vivacity when Mithraism was languishing in decline.

Our objections to the term Parthian, as applied to the coins provisionally so called, and to the princes commemorated by them, and possibly by the idols, arise principally from the impossibility of deeming them *Arsakian*. Under that powerful dynasty, which so long controlled Persia, it is generally understood that the worship of Mithra was discouraged :—we know not why it should have been, and might ask in return, of what religion besides the Mithraic could the Arsakian monarchs have been professors ? It may be, that as Parthians, who have been supposed to be of Scythic origin, they were followers after the manner of their forefathers, whose rites it is one of the objects of the *Zendavesta* to depreciate and to condemn : while with the virulent feelings common to sectarians, and in possession of the necessary power to allow their exhibition, they might have neglected no occasion to discountenance the opposite rites and observances in vogue with the people of *CYRUS*—whence may be accounted for, during their sway, the neglect of Persepolis and the fire temples of *Istakr*. The fire-altar never occurs on any of the coins of the Arsakian princes, while it is seen on those we suspect to be referrible to the princes commemorated at *Bámián*. The same emblem, indeed, distinguishes the coins of the Sassanian princes of Persia, successors in authority to the Arsakian line, and who rekindled the sacred fires throughout the land, which had been extinct for centuries—but on their coins, it is always accompanied by two guardians or defenders—which are wanting on the coins of our princes ; and as the more simple may be presumed the more ancient form, we might deduce from the circumstance a corroborative proof, that they are prior in date to the Sassanian monarchs of Persia. Should this view be correct, we learn that cotemporaneous with a portion of the Arsakian dynasty, a powerful and independent sovereignty existed in *Bactriana*, whose princes became of the orthodox Mithraic faith, or that so lauded in the *Zendavesta*. It is obvious

also that they must have been subsequent to the Greek monarchy—and who they were, and whence they came, can only be profitably speculated upon, when we become acquainted with the antiquities hidden in the regions north of the Indian Caucasus. It is an advantage, however, to possess the knowledge of their existence, their coins and memorials, which display alike their language and religion.

The height of the larger idols has been estimated at 120 feet and 70 feet respectively; the third may be about 50 feet, and the two others were 35 and 25 feet in height. Surveying them, in connection with the theory that they serve to commemorate sovereigns, the gradations in size, as well as their numbers, may be turned to profit; the former denoting the degrees of prosperity under which they were formed, and the latter authorizing us to infer that there were at least as many sovereigns as idols. It is also probable that these idols, with their accompaniments of caves and temples, are not posthumous memorials, but that they were constructed during the lives of the monarchs who projected them. That they are the labors of a series of kings, is an inevitable conclusion, from the moral impossibility that they could have been formed by a single one.

Supposing that *Bámián* was peculiarly a sacred place, and on that account pre-eminently selected for the burial-place of the sovereigns of the age, we may inquire what evidences we have of their sepulchres. Some ancient authority,—we believe CTESIUS or DIODORUS,—describes the mode of interment of the old kings of Persia—which was by lowering down their remains from the summits of precipices into caves hewn in the rock, and then closing up their entrances. Some of the caves at *Bámián* are so situated, as exactly to come within this description; they are now inaccessible, and from their small apertures could scarcely have been intended for dwellings, while without some such contrivance, as lowering down workmen from the top of the eminence, it is difficult to imagine how they could have been hewn at all. It is proper to observe, that at *Bámián* there are none of the structures now familiarly known to us as topes, and which are so abundant in the regions east and west of the Indus; and their absence might suggest the idea that they were a later mode of distinguishing departed royalty, and originated at the period when the Mithraic and Buddhist practices became mixed. Such a conclusion might be convenient for adjusting that epoch, and to sanction it, the whole mass of Afghán topes might be adduced as proofs, exhibiting the chaitya and the cave: but there is no reason to suppose the chaitya exclusively a Buddhist form, and topes are not irreconcilable with the mode of commemorating Persian monarchs—if the monu-



ment at *Múrgháb*, north of *Persepolis*, be really the cenotaph of *CYRUS*, it being nothing but a chaitya or dahgopa; and we hesitate to believe it not to be the tomb of *CYRUS*, having the hints of *ARRIAN* and *ARISTOBULUS*, and the interpretation of an inscription (we believe found on some contiguous monument, which renders the subject doubtful) by *Professor GROTEFEND*. Moreover, if it be, we may inquire, where are the dahgopes of the successors of *CYRUS*?

The most ancient of the topes of *Afghánistán*, which have been yet examined, we think may be referred to the close of the first or commencement of the second century of the Christian era. While we suppose that *Bámián* may be the burial-place of a dynasty of kings, we mean not to infer that it was also their capital, rather supposing that it was not—although the comparatively recent *Ghúlghúleh* may, nevertheless, be supposed to have been the representative of a preceding ancient and considerable city. The *Paropámisus* had been, previous to the conjectured period of the formation of the *Bámián* idols and caves, the seat of a considerable power,—that of the Pandava prince *SUBHÁG*, whose son *GAJ*, the founder of *Gajni* (*Ghuzni*), lost his kingdom to *EUTHYDEMUS* and his sons.

It has been usually conjectured that *Bámián* is the *Drapsaca* of *ARRIAN*, occurring in *ALEXANDER*'s route from *Bactra* or *Bulkh* to *Alexandria ad Caucasum*. *Drapsaca* is called *Drastoca* by *PTOLEMY*, which *WILFORD* tells us is a substitute for the Sanscrit *Drashatca*, or “the stone city.” Admitting the etymology, we need not credit the accompanying assumption that “towns before were only assemblages of huts”—an assumption founded on the caves of *Bámián* being hewn, as indeed all caves are, in the rock—and thereby forming a stone city. If our preceding deductions be correct, they never, strictly speaking, formed a city at all; although one naturally, and as is proved by its remains, grew up and existed in their neighbourhood. Farther, if our conclusions as to the epoch of the formation of the idols be well founded, they consequently did not exist at the period of *ALEXANDER*'s expedition, which may account for no hints being given of them by the classical historians and geographers of the West. We are not certain therefore that *Drapsaca* was *Bámián*, or that a city existed there at all, admitting the probability that a valley so conveniently situated and fertile, was even at that time adequately peopled. The stone city was a term applicable to any substantial one. *TIMUR* in his march from *Bulkh* to India halted for some days, as *SHERIF-U-DIN* says, at the “fine city” of *Khúlm*. This is an ancient site, and with *Hybuk*, *Kunduz*, and any other locality in the route, may have a claim to be considered *Drapsaca*. *Bámián* has also been suggested to represent

*Alexandria ad Paropámisum*. The last word appears to be a careless introduction of the geographers for *Caucasum*. We believe it was not used by the original historians—excusable however, when we consider that the ancients deemed the Paropámisus a continuation of Caucasus, and the passes of the hills between *Cábul* and *Bámián*, are to this day spoken of by the natives as passes of the *Hindu Kosh*, which, strictly speaking, they are not. *Alexandria*, it is clear, was built at the southern base of *Caucasus*, indications of its locality more fully answered by *Ghorbund* and *Beghrám*. *Bámián* may be termed south—but widely—of the true *Hindu Kosh*, and, we should think, has little pretension to be considered *Alexandria ad Caucasum*, beyond the doubtful one conferred by vicinity.

Examining the pretensions of *Bámián* to be considered in another point of view, as a sacred locality, implied perhaps by its being selected as the burial place of kings, we have WILFORD's authority, that it is represented in the books of the Buddhists as the source of holiness and purity. This may be of some value, as shewing that the same spot was held in the same venerated light by the followers of two religions generally understood to be very opposite; and as the antiquities are certainly Mithraic, we might draw the conclusion, that the Buddhists have appropriated the property of others, and that the books referring to *Bámián* are comparatively modern—or we may suspect that Buddhism was originally merely a modification of Mithraism. We judge it unnecessary to detail the Mahommedan traditions respecting *Bámián*, which ascribe, however, the idols to SA'LSA'L, whom they generally assert to have been a giant infidel, first vanquished and then converted by AZARET ALI; nor need the Buddhist and Brahmanical traditions be noted, with a view to comment, which consider SHARMA or the patriarch SHEM to be the founder of *Bámián*,—because we have no proof that he was, or was not;—but when a writer so talented as WILFORD asserts with apparent gravity, that *Bámián* is the Mosaical Eden, it may be useful to review the grounds on which he bases his opinion and makes an assertion so singular. He is compelled to recognize in the *Landhi Sind Helمند*, the rivers of *Kundus* and *Balkh*, the *Phison*, *Gihon*, *Frat* and *Hiddekel* of the Mosaic accounts—but it is plain that he depends upon the statements of the Puránas and Zenda-vesta. The former contain so many evidences of modern composition, that they surely ought not to be brought into competition or comparison with records of high antiquity, as are acknowledged to be those of the Pentateuch. The age of the Zendavesta has been much disputed, some conceiving it of unfathomable antiquity; others, among whom is our countryman HYDE, ascribing it to the epoch of DARIUS

HYSTASPES ; while others have deemed it of comparatively modern origin. We are free to confess that we espouse the latter opinion, and the very passages cited in favor of its remote age, we think, are decisive against it. We advert to this subject the more willingly, because we cannot help suspecting the possibility, that the *Zendavesta* was compiled in the court of the sovereigns commemorated at Bámíán.

It is worthy of note, that the Brahmans, Buddhists and Mithraists have the same ideas as to the locality of paradise, shewing that they must have acquired them from each other, or from some common source. It is not improbable that the two first adopted them from the last, and it may be conjectured, though it will tell little for the antiquity of the *Zendavesta*, that Bámíán may have been clothed with a sacred character, from the very circumstance of its having been made a burial-place of kings—for so the *Zendavesta* itself commemorates, when it describes *Gorotman* (Bámíán or its vicinity) as a terrestrial paradise, and reveals its nature when it figuratively and significantly adds, “the abode of the Supreme Being and the *Blessed*.” There can be no doubt but that the larger idol of Bámíán is also the more ancient, and with its accompanying caves became the nucleus, around which all the other caves and idols were subsequently and successively formed ; and it is a fair inference that, prior to the construction of the first idol, there was no burial place of kings at Bámíán, and none worthy of emphatic panegyrisms by the author of the *Zendavesta*.

The remote antiquity conferred by some antiquarians upon the *Zendavesta* is not claimed by its author ; and why he should be called ZOROASTER who called himself ZERDESHT, is only to be accounted for by the desire of theorists to identify him with a celebrated person of that name, who existed, according to authentic history, some centuries before him. ZERDESHT so clearly narrates the details of his career, that it is impossible to misunderstand them, and they cannot be more correctly or more concisely represented than in the elegant language of Professor HEEREN, one of the most able advocates of the impenetrable antiquity of the *Zendavesta*. The Professor writes—“The works of ZOROASTER (ZERDESHT) abound in details relating to his own person, as well as the countries and kingdom, which were the first scene of his career as a reformer. He proves by the clearest geographical data, that his native country was Northern Media, Azerbaijan, or the territory between the river Kur or Cyrus and the Araxes, both of which empty themselves into the Caspian. Here he first appeared as a legislator and a reformer ; but soon quitting this district, he passed into the countries east of the Caspian into *Bactra*, the residence

of king GUSTASP, who became his disciple and admirer. The original seat therefore of his new religion or doctrine was *Bactra*, whence (under the protection of GUSTASP) it was disseminated over *Iran*."

ZERDESHT, in giving the name of the sovereign of *Bactra*, his patron, possibly gives that of one of the sovereigns commemorated at *Bámián*. If it be so, we may associate with him LOHRASP his predecessor, and it is deserving of particular notice that the romantic history of Persia ascribes to LOHRASP the construction of a hermitage, to which he retired, abdicating his throne in favor of GUSTASP, and from which he was called forth to repel an invasion upon *Bulkh*, (GUSTASP being absent at the time in *Seistan*,) when he fell in battle. We perhaps gain from this history a hint as to the origin of the caves and idols of *Bámián*. Having coins with legends, which it is not too much to hope may be interpreted, we may ultimately ascertain these facts, when we shall be afforded triumphant evidence of the age of the *Zendavesta*; and it is cheering to reflect that records are preserved of these kings independent of the *Zendavesta*, itself a most important and valuable one. These records are within our reach, and we have only to distinguish fiction from reality, and history from romance, to acquire a full and satisfactory knowledge of a hitherto dark period.

ZERDESHT has accurately described the extent and partitions of the kingdom in which he lived, as justly observed by Professor HEEREN, and what he describes we shall allow the Professor also to state for us. "The opening of his *Vendidad* contains a catalogue of the provinces and principal cities of that kingdom; and this record, so invaluable to the historian, is so clear and complete as to leave no room for doubt. The chief provinces and places, sixteen in number, are registered according to their oriental appellations, and for the most part are easily to be recognized. We learn hence that, except *Azerbijan*, to the west of the Caspian, all the countries east of the same, as far as northern Hindustan, were, together with the latter country, subject to king GUSTASP, at whose court the sage resided. The whole of *Khorásán* is here enumerated, with the several provinces of which it is composed—*Bactriana* and *Sogdiana*, *Aria* or *Sehestan*, *Cabul*, *Arokhage*, the confines of Hindustan, and finally *Lahore* in the *Panjáb*, are all successively mentioned."

The record of ZERDESHT is indeed historically valuable, and describes the extended empire of *Bactria* as it probably existed under EUCRATIDES, and as it may possibly have fallen into the hands of the Kíánians—in many of the countries as we know, and very probably in all of them, are found their coins and memorials. It will be re-



membered that *Ariana* or *Khorásán*, formed a portion of the *Bactrian* empire, as recorded by STRABO. Professor HEEREN remarks—"Nothing, however, is said of the two chief provinces of the Persian empire, *Persis* and *Susiana*, nor of their capitals, *Persepolis* and *Susa*, nor of *Babylon*, which, nevertheless, were the customary residences of the kings of Persia, and in particular of DARIUS HYSTASPIS." So remarkable an omission will cease to surprise, when probably at the epoch of ZERDESHT, we may suspect those provinces, and also *Babylon*, were under the rule of the Arsakian princes—and therefore could not be enumerated by him as forming part of the kingdom of GUSTASP. They were also under the spiritual influence of those false Magi, in the estimation of ZERDESHT, against whom he is so severe, and whom he stigmatizes a *káfraster*—a term for infidel preserved by Muhammedans of this-day in *kafr*. The possible fact of a powerful independent monarchy in *Bactria* subsequent to the Greek one, gives rise to many singular reflections on the probable relative position it occupied with respect to the Arsakian: and we may divine other reasons besides those already known, which induced some of the latter Arsakian princes to fix their capital at *Babylon*, or rather *Ctesiphon*. We feel, however, that the time has not arrived for delicate speculations, neither can we venture to fix with certainty the epoch of the Kaiáni-an monarch, but we do feel confident that materials exist to fix it,—and we do cherish the hope that it is possible to destroy that flagrant monster of fiction and prodigy of national vanity, Persian history. If the LOHRASPS and GUSTASPS prove to be Bactrian monarchs, as indeed ZERDESHT tells us they are, we may ask whether Queen HOMAI may not be SEMIRAMIS, and RUSTAM may turn out to have flourished a little before the age of MUHAMMED. The same sources of information are open to us, as were to SHAH ISMAEL when he wrote to SHEIBANI KHÁN, "That if the right of succession to a throne was decided by hereditary descent only, it was to him incomprehensible how the empire had descended through the various dynasties of Peshdadians, Kaiánians and the family of CHENGIS to himself SHEIBANI."

As for the *Zendavesta*, however, it may be admitted that a ZERDESHT flourished in the reign of GUSTASP. It is by no means certain that that work as now preserved was written by him; on the contrary, the dialect in which it is written, would seem to be proof that it was not—for it must assuredly be the most recent of all the dialects of the Pehlevi—if Pehlevi at all; and accordingly on reference to coins, we discover the first traces of it on the very last of that series, (whether Sassanian or Peshdadian) which bears them, and then not in the legends of the coins, but as marks manifestly punched on them after they had been in circulation!

We submit these notes on the idols of *Bámíán*, with the observations occasioned by them, in all due humility—and furnish the authorities in the inscription, figures, and coins, on which we have based our conjectures, that others may judge how far they may be correct; and it must be noted that the coins which bear legends in the characters of the *Bámíán* inscription, do appear to us at least to be the most recent of the class to which they belong. This we consider rather fortunate than otherwise; for if they are still Kaiáunian or Peshadian, we may be able to find other caves and hermitages for LOHRASP and GUSTASP—it being remembered that we are yet standing only on the threshold of discovery.

*Kabul, June, 1836.*

IV.—*New types of Bactrian and Indo-Scythic Coins, engraved as Plate XLIX.* By JAMES PRINSEP, Sec. &c.

I did not expect to be again so soon summoned to resume the graver in the department of Bactrian medals; but to do so when such novel and interesting specimens are handed to me, is no less an obligation than a pleasure.

The two main attractions of my present plate are represented with scrupulous regard to fidelity, from the coins themselves, which were entrusted to me for the purpose by their fortunate possessors, as soon as they were discovered.

No. 1 is an unique of *Amyntas*, a name entirely new to *Bactria*; it is a square coin of bronze lately procured by Colonel STACY from the *Panjab*, in excellent preservation.

*Obverse.* Bust of the prince wearing a curious cap, which may possibly represent the head of an elephant, but from the worn surface cannot exactly be made out—legend on three sides of the square, ΒΑΣΙΛΕΥΣ ΝΙΚΑΤΟΡΟΣ ΑΜΤΝΤ (ου).

*Reverse.* A standing figure of Minerva, with helmet, shield and spear—her right hand extended in token of peace. Square monogram Ν. Legend in Bactro-Pehlevi 𐎧𐎡𐎴𐎡𐎴𐎧𐎺𐎠𐎹𐎡𐎴𐎧𐎺𐎠𐎹; quasi, *malakáo ájalade amído*. It will be at once perceived that the native epithet corresponding to *νικατορου* is the same as that for *νικηφορου* on the coin of *ARCHELIUS* published in my September number, (page 548,) and before on the coins of *ANTIALKIDES* and *ANTIMACHUS*, with exception only of the first letter. The word was there read 𐎧𐎺𐎠𐎹; the initial 𐎹 *a* being substituted for 𐎡, or broad *á* of the *Archelius* and *Amyntas* coins. The third letter in those cases is also rather an 𐎺

Bactrian Coins.



Kedos





l, than ζ, of which the value is as yet unknown. I have called it l ad interim.

*Fig. 2* is, if possible, a more valuable acquisition than the above, being the first queen of *Bactria* yet discovered. Dr. SWINEY obtained the coin among KERÁMAT ALI's collection. It was thickly coated with the rust of ages, and, from the helmeted head on the obverse, was looked upon as a MENANDER, until the Doctor set about cleaning it carefully with a hard brush, and, perceiving a variation of the legend, shewed it to Captain CUNNINGHAM, who immediately recognized with a feeling of intense curiosity the undoubted title of a female sovereign ΒΑΣΙΛΙΣΣΑΣ ΘΕΟΤΡΟΠΗ (ης) ΑΓΑΘΟΚΛΕΙΑΣ—"of the queen AGATHOCLEA, the god-nourisher." This very curious epithet *θεοτροπη*, a word not to be found in the lexicon, must have been coined on purpose for the queen-mother, after the oriental style of flattery, in allusion to her royal offspring.

*Reverse.* Hercules seated on a rock (or a *morha*), resting his club on his right knee—monogram *℞*. The Pehlevi legend is most unfortunately so indistinct in one or two places, as to preclude the possibility of our making out the true reading. The first word seems to differ in no way from the ordinary *𐭕𐭕𐭕𐭕 malakáo*, king: and the second would appear to be *𐭕𐭕𐭕𐭕 raduko*, *σωτηρος*; then follow two short words *𐭕𐭕𐭕𐭕 𐭕𐭕𐭕𐭕* which I am totally at a loss to expound, though the individual letters are clear enough.

To these two uniques I have subjoined some new types of EUTHYDEMUS, MENANDER, and EUCRATIDES, which have not yet been engraved, though some have appeared in the lithographs of MASSON's drawings.

*Fig. 3.* A silver tetradrachm of EUTHYDEMUS, now in Dr. SWINEY's cabinet, having a standing Hercules on the reverse, in lieu of the seated figure. The coin must have been originally very beautiful, but we learn from the memorandum of KERÁMAT ALI, who purchased it at *Cabul*, that it was taken to Dr. GERARD, who deemed it spurious or not silver\*; this induced the vender to put it in the fire (cased in clay) to ascertain the fact, and the smoothness of surface, and clearness of outline were thus destroyed. The *beaux restes* are still sufficient to excite admiration.

*Fig. 4* is from MASSON's drawing of a small copper piece of EUTHYDEMUS. The reverse has a naked horse prancing. Legend as usual, ΒΑΣΙΛΕΥΣ ΕΥΘΥΔΗΜΟΥ. MASSON has another similar, but larger.

\* Probably it was covered with a coat of muriate, like my EUTHYDEMUS.



HOV. The same is met with on one of the couch-lounger coins extracted from the Manikyāla tope, (see fig. 29, Pl. xxii. Vol. III.) It may possibly be a perversion of the tri-literal MAO. But the horns of the moon do not appear on the shoulders.

*Fig. 13.* A rare and valuable variety of the Kenranos coin in Dr. SWINEY's cabinet, of which Captain CUNNINGHAM has a less perfect duplicate; the obverse legend, hardly legible, must be PAONANO PAO, &c. The reverse has the standing female figure with the horn of plenty, and legend ΑΡΔΟΧΡΟ, as on the gold coins of the same device.

*Fig. 14* should have been introduced in my last plate, among what I have supposed the fourth series of ΑΡΔΟΚΡΟ imitations. This coin, of which Dr. SWINEY possesses several equally legible, has the legend ΑΡΔΟΧΡΟ quite distinct, proving that this group must be regarded, not as an imitation but as the direct descendant of the Mithraic series in the Kanerkan line. The appearance of Nágari on one of my coins must be regarded therefore as Greek. It is curious that MASSON should not have detected a single letter on all the specimens he amassed. Some faint remains of them are traceable on those from Behat.

*Fig. 15* is a duplicate of MASSON's coin, fig. 15, of my last Bactrian plate, in Dr. SWINEY's possession. A few of the Pehlevi characters are better made out, but the proprietor of this coin still eludes us.

*Figs. 16, 17, 18.* I terminate this plate with three coins of Kôdes in Capt. CUNNINGHAM's cabinet purchased from the late General ARNOLD's collection, of an entirely new reverse. They are all of silver, deeply indented to throw the head out. The letters ΚΛΔ. are visible on the smallest of the three, which is otherwise of the best execution. The horse's head of the *reverse* gradually deteriorates until it can be no longer recognized (as in 18) without the earlier coins as objects of comparison. On cleaning one of my Kôdes coins, it was found likewise to have the horse's head reverse; and the horse has been since traced to the *Chouka Dooka*, or degraded Saurashtra series, in some specimens also purchased from the estate of the late General ARNOLD.

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*Postscript.* I cannot delay one moment announcing a very successful reading by Professor LASSEN of Bonn, of the native legend on the coin of AGATHOCLES depicted in Vol. III. Pl. ix. fig. 17, by MASSON, and again engraved last month as fig. 9 of Pl. XXXV. The following is an extract from the Professor's letter this moment received. "The legend on the coin of AGATHOCLES, is in my opinion, in another character, and I think we may recognize in  $\text{H} \wedge \phi \text{J} \text{L} \text{E}$

the letters अगथुक्लराज, *Agathukla rāja*, reading from the left to the right. The first two letters are self-evident—the third is similar enough to the Tibetan and Pāli forms of *th* with *u* below: the fourth letter expresses *kl* quite in the Indian manner. If I am right in this, it will be necessary to give to AGATHOCLES a very different position from that assigned to him by Mr. RAOUL ROCLETTE.”

The principal objection to this highly plausible solution of the Agathoclean legend is, that nearly the same characters also appear on the coins of PANTALEON. There are differences to be sure, and it might be possible to assimilate the word to the Greek, on the supposition of the first syllable being wanting—thus Ἰ Ἰ Ὀ will form . . *talava* or . . *talao* . . the next letter on MASSON’s coin is a *ε*, *j*, and on Dr. SWINEY’s a *t* or *n*, but on both coins there are three letters to the left of the female which still remain an enigma.

I have also just had the opportunity of perusing M. JACQUET’s first paper on the VENTURA coins, but as this merely enumerates their Greek legends, postponing the consideration of the Bactro-Pehlevi, there is nothing in alteration or correction of my own list excepting the termination of some of the names, *Kodes*, *Lysias*, *Vonones* (?) for *Nonus*, *Azes*, &c. M. JACQUET had remarked the connection of the Hindu coins with their Indo-Scythic prototype when examining Col. Tod’s collection, but had not published his sentiments.

V.—*Facsimiles of various Ancient Inscriptions, lithographed.* By JAMES PRINSEP, Sec. &c.

[Continued from page 661.]

*Stone Slabs in the Society’s Museum.*

Many of the inscriptions in our Museum bear no record, either of the places whence they come, or of their respective donors. Unless therefore they contain in themselves such information as may supply a clue to their origin, the greater part of their value is lost. Publication may in some cases lead to their recognition, and this is one of my motives for including them in my present series of lithographs; a stronger motive is, the example they furnish of the variation of Devanāgarī character prevalent at different epochs; which it is desirable to place in an accessible position for reference, before we can undertake a comprehensive review of the palæography of India.

The inscription, marked No. 5, in the Museum (Pl. XXXIII.) is neatly cut on a stone, about  $2\frac{1}{2}$  feet long by  $1\frac{1}{2}$  feet broad. It is nearly in the same character as that of the *Shekawati* inscription, pub-







lished in my last volume. There are, however, some peculiar forms, as the *kh*, the *gh*, the *a*, &c. Hardly any of the letters in the whole inscription can be regarded as uncertain; I have had therefore, no difficulty whatever in preparing the following transcript in modern Devanāgarī. But as to the interpretation, after receiving a formal certificate from the pandits of the College that, with exception of the verses at the commencement and conclusion, the body of the inscription was not Sanscrit, or was so ungrammatical as to be quite unintelligible, it may be conceived that I was somewhat staggered! However, on conning it over word by word, with a pandit better versed in the out-of-the-way terms employed, the general drift was readily made out, although the connection in many parts still remained broken, and the sense doubtful. As there is neither date nor allusion to any reigning monarch, the fragment is of no historical value; but it may be a curious study for the Sanscrit scholar.

*Transcript in modern Devanāgarī character.*

१ नमो भगवते वासुदेवाय ॥ यस्याग्र\*ता बद्धमुखा विधयः युतोनां यद्येतसांच वचसांच परा प्रतिष्ठा । तं लोककारणमधीश्वरमीश्वराणां नारायणं सुतपसाम यजं प्रपद्ये ॥ अक्षयनीतिस्थाने प्रतिवारं प्रतिवारं दीयते लोके दीपतैलस्य । कुंकु मद्रामस्य पणचतुष्टयं पुष्पाणि ॥ धूपपूद्गेमस्य घृतं ॥ आमलकानां सेतिका मसुरिकाणां सेतिका । उन्ननकापटिकेकैश्वरे चैवं वराहप्रटिका अल्लगामरिकाया विष्णो- अर्द्ध ॥ उपेक्षकग्रामगार्थावापः । विष्णोःचैवं । तत्र चतुराघाटं कथ्यते दक्षिणेन वटकं पूर्वैर्ण चैवमर्थ्यादा उत्तरेणापि अल्लगामरिकायाः सीमैवमर्थ्यादा । तत्रैव पश्चिमन गार्थावापः पूरणेयः उद्यतोमर्थ्यादः केतकिवाटः त्रयोदशआस्रहचैर्मध्यगतौ वटतट- कादग्रतःसकच्छः केदारैसदः । कूपःसंयुक्तः तत्रैव वटतटका पश्चिमेन केदारचैवं दुष्ट दक्षिणेन ॥ अंबिलिकापाटकस्य दक्षिणेन पश्चिमेनपि वर्षनीयावः मद्रस्य अग्रतकच्छः अंबिलिकापाटकस्य उत्तरेण कच्छार्द्ध ॥ वीथीद्वयं लौकिकेन दत्तं तस्यैव पुत्रेण मित्रटेन वीथी कन्दसमीपे वोहटगृहसंयुक्ता दत्ता ॥ सुहोअन्यापि वीथी विष्णौ पुण्यार्थं दत्ता । वीथीचतुष्टयं गृहद्वयं अक्षयनीति ॥ वृहतपर्व्वताः पश्चिमेन मधुवृक्षचतुष्टयं कलालानां सुरायां सुरायां द्रामद्वयं अक्षयनीति शिवहरिणा कृता ॥ काले कालेतु यदत्तं पुण्यकृद्भिः समाधिना । तत् पालनीयं स्थानेन विष्णोः पुज्यार्थं सिद्धये ॥ यद्वह्नकवीथी त्रीणि शतानि द्रमाणेदत्वा मौननीया ॥

*Translation.*

Salutation to the divine son of VASU DEVA, (KRISHNA.) We adore with becoming reverence NĀRĀYANA, lord of lords, creator of the three worlds, source of the holy precepts of the vēdas, whose praise is beyond speech and thought.—For the abode of the eternal† day by day the pious offer up lamps of oil; of saffron‡ and asafœtida four

\* This should be त्रि. † A Vaishnavī temple so called?

‡ *Kunkuma-drāma*; the whole of this passage is very obscure, and full of orthographical errors.

*pans*\* : of incense, *dron* flowers, ghee, *amalika* (myrobalan fruit) a *sèr* weight ; *masuri* pulse, a *sèr* ; of dry-wood perfume (*indan*) ; *davaha* (?) 16 pans.—(Here follows apparently an enumeration of landed property belonging to the temple or *Vishnu-khètram*)—*Allagamarika* (?) a road,—*Upa allaka*, a small village, with a good tank having four pucka ghâts. They say on the south is a *bar* tree ; on the east a boundary wall ; on the north the wall of *UPALLIKA* village ; on the west a bazar and old tank, where is also a wall. Between the *bar* and a great many mango trees are 13 *ketaki*† trees. Also hard by, a well with a cattle-trough attached. On two sides of the *bar* tree a chabutra is built, on the west a boundary wall : farther off to the south, a tamarind tree, on the south and west are two roads, and a police *chauki*‡ : further on a drinking trough. On the north of the tamarind tree, half a trough ; item two rows (shops) built by *LOKIKA* ; whose son, named *MITRATA*, built a row, a cistern, and a handsome *dharmsála*. Another lane also, two houses and four bazars, for the *Vishnu-khetra*, bounded to the west by several large hills,—four *mauwa* trees, two pottery and distiller's shops (?) were severally given by *SIVA HARI*, another son. (Verse.) Whatever has been thus presented to Vishnu, may they for ever hold sacred ; and let nobody abstract the house, the bazars, (300 ?) nor the numerous trees.

*Seoní grant, Plate XXIII. et seq.*

For this ancient document I am indebted to Mr. D. M. McLEOD, assistant to the Commissioner of the *Nerbudda* territories, who stated, on sending me a copy of the first plate, some months ago, that it was one of five in the possession of a native zemindar in the *Seoní* district, supposed to be a *jatas* or *sanad* confirming lands granted by former *Goand* chiefs, but wholly illegible to the pandits of the *Nerbudda* district. Recognizing the character as identical with that of the *Chattisgarh* inscriptions, published by Mr. WILSON in the *Asiatic Researches*, vol. xv. page 507, I supplied Mr. McLEOD with this alphabet and with a transcript of the plate in modern *Nágarí*, of which the sense, however, could not be wholly made out for want of the context. Through absence of leisure, and illness of his pandit, the discoverer has been obliged to relinquish his laudable desire to decypher the document on the spot, (where he might, doubtless, have been aided by the names of the countries and villages mentioned in the grant,) and to entrust a faithful copy of the remainder, made with great care by his young native friend *MIR JÁFIR ALI*, (who has performed his task remarkably well,) to our more hazardous attempts in Calcutta.

\* 8 *Tolas*. † *Pandanus odoratissimus*. ‡ *Bhath*.



[illegible]

FACSIMILE of No 6 of MUSEUM.  
An Dom. 1035.

Chattisgarh  
Alphabet, compared.

Chattisgarh Alphabet, compared.		Variants
ॐ	क	ॐ द
ख	ख	ॐ घ
ग	ग	ॐ न
च	च	ॐ प
उ	उ	ॐ फ
व	व	ॐ ब
र	र	ॐ म
ल	ल	ॐ य
श	श	ॐ र
स	स	ॐ त
ह	ह	ॐ व
ॐ	ॐ	ॐ श
ॐ	ॐ	ॐ ष
ॐ	ॐ	ॐ स
ॐ	ॐ	ॐ ह
ॐ	ॐ	ॐ य

Second Inscription from Chunar, in As. Soc. Museum.

२४ मन्त्र ॥ १ ॥ ॐ नमो भगवते वासुदेवाय ॥ १ ॥  
 २५ गृह्यसूत्रम् ॥ १ ॥ ॐ नमो भगवते वासुदेवाय ॥ १ ॥  
 २६ गृह्यसूत्रम् ॥ १ ॥ ॐ नमो भगवते वासुदेवाय ॥ १ ॥  
 २७ गृह्यसूत्रम् ॥ १ ॥ ॐ नमो भगवते वासुदेवाय ॥ १ ॥  
 २८ गृह्यसूत्रम् ॥ १ ॥ ॐ नमो भगवते वासुदेवाय ॥ १ ॥  
 २९ गृह्यसूत्रम् ॥ १ ॥ ॐ नमो भगवते वासुदेवाय ॥ १ ॥  
 ३० गृह्यसूत्रम् ॥ १ ॥ ॐ नमो भगवते वासुदेवाय ॥ १ ॥

[illegible][illegible]

Third Plate continued

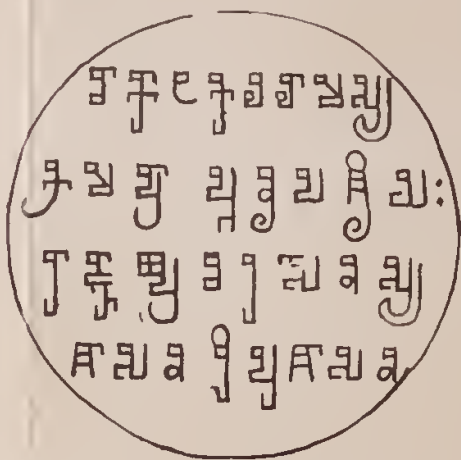
[illegible]

Fourth Plate

[illegible]

၁။ ဗုဒ္ဓ၏ နာမ်များကို အသိရှိရန် ဗုဒ္ဓ၏ နာမ်များကို  
 အသိရှိရန် ဗုဒ္ဓ၏ နာမ်များကို အသိရှိရန်  
 ၂။ ဗုဒ္ဓ၏ နာမ်များကို အသိရှိရန် ဗုဒ္ဓ၏ နာမ်များကို  
 ၃။ ဗုဒ္ဓ၏ နာမ်များကို အသိရှိရန် ဗုဒ္ဓ၏ နာမ်များကို

*Inscription on the Seal.*



Letters peculiar in form.

[illegible]



Received only within the last week, I have been so hurried in transcribing, translating, and lithographing, that I fear full justice has not been done. The order of the plates having been lost by taking them from their binding ring, I had to guess it from the connection of the reading—and on revising the first translation, with the aid of a second learned pandit (KAMALA KÁNT), I found I had inverted the order of the two sides of the second plate in the lithograph, which I was unable to correct, before printing it off. I have also omitted the first syllable *sthá* of *sthánè* where this word is repeated in the first page of the lithograph. The rest is, I believe, pretty correct.

The character in which the *Seoní* plates are written, when deprived of the open parallelogram at the head of each letter, is so closely allied to No. 2 of the *Allahabad* láth, that there could have been but little difficulty in decyphering it, even without the aid of SRÍ VARMA SURÍ's alphabet, which Mr. WILSON seems from his words to have applied with considerable distrust at that period\*. There are indeed notable deviations from the *Chattisgarh* type† in several letters, as well as invariably in the application of the vowels. I had inserted VARMA SURÍ's alphabet in Plate XXXIII. with a few variations marked. I have now further noted some of the chief peculiarities at the foot of the last plate.

Concerning the purport of the inscription little need be said. It is an ordinary grant by one RÁJA PRAVARA SENA, of a piece of ground in a conquered district to his officiating priest, in perpetuity :—but neither the country nor the boundary villages mentioned, nor any of the said RÁJA's family can be recognized ! The dynasties of *Cuttack*, the nearest resembling *Vákátaka* in sound, exhibit no such names as PRAVARA SENA, RUDRA SENA, PRITHIVI SENA, RUDRA SENA ; and again PRAVARA SENA, who successively reigned over this unknown province. That they were of an inferior grade is shewn by their simple title of *Maharāja*, while DEVA GUPTA, whose daughter was married to one of the line, and was mother to RUDRA SENA II. is styled the paramount sovereign (*Maharāja Adhírāja*). This is the second instance within a year of our finding the record of a matrimonial alliance with a *Gupta* family, which we can suppose to be no other than the one now so well known to us through coins and pillars. The present name DEVA GUPTA, however, is an addition to our still growing catalogue.

\* "After two months the pandit was again called on without previous notice or preparation to read his copy of the original, whilst his reading was checked by careful reference to the Devanágari transcript." As. Res. XV. 507.

† M. JACQUET has sent me from Paris the facsimile of a plate in the Ton collection, which corresponds more closely with the *Chattisgarh* plates.

What would have added still more to the value of the present document, is the exact date it cites, were it not unfortunately in an unknown era, entitled *Pravarddhamánarajya Samvat* : it may, however, bear the interpretation of "date of the growing (or current) reign" which I have adopted in the translation. At any rate, the omission of the now common dates in all these early records proves that the *Vikramáditya Samvat* was not then generally in use.

The omission of a benedictory invocation at the head of the inscription is a curious circumstance also noted in the *Chattisgarh* grant. The initial word *Drīsthamasi*, may possibly be equivalent to "Take heed"—or "By these presents." Some of the epithets, especially those applied to the piece of ground, are too far-fetched even for a guess solution by KAMALA KÁNT and RAM GOVINDA, whose ingenuity has good reason to be admired even in those I have attempted to render into English. They refer to practices of petty exaction not uncommon among feudal chieftains.

*Transcript of the inscription in modern character.*

On the seal. . . . . { वाकाटकलक्ष्मणस्य  
क्रमप्राप्तवृत्तियः  
राज्ञः प्रवरसेनस्य  
शासनं रिपुशासनं

दृष्टम } अग्निष्टोमाप्रोत्थमोक्तपोडश्रितिराववाजपेय वृहस्पतिसव  
सिनम }

सायस्कचतुरश्वमेधयाजिनः विष्णुरुद्रसगोवस्य सप्त\*ठ [\*सञ्जाजः काटकाना  
म्हाराज श्रीप्रवरसेनस्य स्थाने स्थाने अत्यन्तस्वामिमहा  
भैरवभक्तस्य इन्दुसन्निभशितशिवलिङ्गोद्दहनशिवस्य परितुष्ट  
समुत्पादितराजवंशानाम् पराक्रमाधिगनभागीरथ्यमलजलमूर्द्धभि  
षित्तानाम् दशश्वमेधावभ्यस्तातानाम्भारशिवानाम्भाराजश्री  
रुद्रसेनस्य स्थाने अत्यन्तमाहेश्वरस्य सत्यार्ज्जवकारुण्यशै  
र्यविक्रमनयविनयमाहात्म्याधिमखहोवगतभक्तिलघुर्भविजयि  
त्वमनोर्नैर्मल्यदिगुणसमुदितस्य वर्षशतमभिवर्द्धमानकोश  
दण्डसाधनसन्ततपुच्छपौत्त्रिणः युधिष्ठिरहृत्तेर्वाकाटकानाम्भाराज  
श्रीशृथिवीषेणस्य स्थाने भगवत्सुक्रपाणेः प्रसादोपार्जित  
श्रीसमुदयस्य वाकाटकानाम्भाराजश्रीरुद्रसेनस्य स्थाने  
पूर्वराजानुवृत्तमार्गानुसारिणः सुनयबलपराक्रमा  
च्चित्रसर्वद्विषः महाराजाधिराज श्रीदेवगुप्तस्य सुतायाम्प्रभावती  
गुप्तायामुत्पन्नस्य शम्भोः प्रसादवृत्तिकार्त्तयुगस्य वाकाटक  
वंशलङ्कारभूतस्य महाराजश्रीप्रवरसेनस्य वचनात् एनं  
कार्यरतागे प्रवर्द्धमानराज्यसंवत्सरे अष्टादशमे फाल्ग  
नशुक्लद्वादश्याम् मौद्गल्यसगोत्राय तैत्तिरीयायाद्वयं  
वे देवशर्माचार्यायोदकपूर्वम् सकेरटः सपणशतकः  
ब्रह्मपुरकद्वामग्रामो विद्वष्टः वटपुरकस्योत्तरेण किनौहिवा  
टकस्यापरेण पवरज्जवाटकस्य दक्षिणेन कोल्लपुरकस्य

पूर्वेण स्वसीमापरिच्छेदेन करजाविरकतटे अत्रास्मत्सामन्तकाः  
 सर्वाध्यानियोगनियुक्ताः आज्ञासत्कारिकुलपुत्राधिकृताः भटा  
 ऋन्नाश्च विभूतपूर्व्या आज्ञया आज्ञापयितव्याः विदित  
 मस्तु वः यथैषास्माभिः आत्मनो धर्मायुर्वलविजयैश्वर्यैश्चिद्वये  
 इहामुत्र हितार्थमात्मानुग्रहाय वैजयिके धर्मस्थाने अभट  
 च्छत्रप्रावेशः अपारम्परगोवलिवर्द्धः अपुष्पक्षीरसन्देहश्च  
 रासनवर्माङ्गारः अलिव ह्रिन्वक्त्रेराधनतः स्थातु विष्टिपरिहर  
 परिहृतः सनिधिः सोपनिधिः सक्लिशोपक्लिप्तः आचन्द्रादित्य  
 कालीयः पुत्रपौत्रानुगाली भुज्यमानो न केनचिद्ग्राघातयि  
 तव्यः सर्वक्रियाभिः स रक्षितव्यः परिवर्द्धयितव्यश्च यस्यास्म  
 द्द्यासनमगणयमानः स्वल्पमपि परिहृतं कुर्यात्कारयेत वा  
 तस्य ब्राह्मणेरावेदितस्य सदण्डनिग्रहं कुर्याम कारयेम वेति  
 सेनापतौ नाप्यदेवे लिखितमाचार्येण ॥ अस्मिन् धर्माधिकरणे  
 अतीतानेकराजदत्तात्तु चिन्तनपरिपालनकृतपु  
 ण्यलुक्तीर्त्तयामः वयन्तत्कालप्रभविष्णुं गौरवाद्भविष्यान्वि  
 ज्ञापयामः ॥ व्यासगीतौ चात्र श्लोको प्रमाणीकर्त्तव्यौ  
 षट्पिषसहस्राणि खगं मोदति भूमिदः । आच्छेत्ता वावमन्ता  
 च तान्येव नरके वसेत् ॥ खदत्ताम्परदत्तांवा यो हरे  
 त वसुन्धराम् । गवां शतसहस्रस्य हन्तुर्हरति दुष्कृतमिति ॥

### Translation.

*Of the seal.* The irresistible edict (*sāsanam*) of the illustrious prince of hereditary lineage, the ornament of *Vākātaka*, Rāja PRAVARA SENA.

*Of the copper plates.* *Drīshṭamasi nama\**. The illustrious Maharāja PRAVARA SENA of the race of VISHNU-RUDRA the rishi, performer of the several sacrifices of *Agnishtoma*, *Aptoryamekta*, *Shoṛasyatirātra*, *Vājapē*, *Vrishpati*, *Sadyaskra*, and the *Chaturasvamēdha*, ruled over the entire (province of) *Vākātaka*. In his place (succeeded) the superlative lord, devoted to Bhairava—happy in being the vehicle of the moon-like† Sivalinga,—the great king of *Vākātaka*, Śrī RUDRA SENA, grandson of GŌTAMĪ, the daughter of the great king BHAVANA'GA‡ who was descended from a race of conquerors entitled to be inaugurated with the unsullied water of *Bhagirathi*, (the Ganges,) and who had bathed in the sanctified water of the *Dasasvamēdha* sacrifice,—the Bharasiva race. To him succeeded the diligent worshipper of MAHESVARA§, the just, upright, benevolent, brave, heroic, moral, humble, high-minded, strict in religious observances, victorious through faith, of a soul free from blemish,—endowed with all these virtues ;—(who was) blessed with a century's store

\* This might possibly be an invocation in the usual form, but no divinity of the name of *Drīshṭamasi*, of which the letters are quite distinct, is known.

† White. The epithet signifies a devoted worshipper of *Siva*.

‡ Or Bhavanātha? § Siva.

of treasures, of the benefits of civil polity, of warlike armament, of children and grand-children—who was as celebrated as YUDHISTHIRA, the great prince of *Vākātaka*, ŚRĪ PRITHIVĪ SENĀ. To whom succeeded, the protected of the discus-holding divinity\*,—the most opulent Mahārāja of *Vākātaka* ŚRĪ RUDRA SENĀ :—who was followed by the son of PRABHAVATĪ GUPTĀ, the daughter of the conformer to ancestral customs—the upright conqueror of his enemies—The great king of kings ŚRĪ DEVA GUPTA,—the protected of Siva,—possessing the firmness of the Rājas of the *Satyā yuga*,—surpassing all of the race of *Vākātaka* princes, Mahārāja ŚRĪ PRAVARA SENĀ ; whose edict is (as follows).—

*Ernna Kāryyaratāget*...in the 18th year of his reign‡? on the 12th day of the light half of the month of *Phalguna*,—to DEVA SARMA'CHA'RYA, chanter of the *Sāma veda*, of the *Modgala* tribe, and *Taitriya* sect, is granted with the ceremonies of sprinkling Ganges water, *Kératu* (?) and distribution of 100 *pans*,—the village of *Brahmapura*, situated to the north of *Vatapura*, to the west of *Kinauhi.vātuk* to the south of *Pavarujja-vatak*, and to the east of *Kollapur* ; demarked by these several boundaries, and seated on the banks of *Karanja* rivulet (?)

Be it known to all our subjects, our functionaries, and agents, to all obedient ryots now and hereafter, soldiery, spies §—That with the usual intent of such grants, for the increase of our virtue, life, power, wealth, and prosperity, here and hereafter, as well as for the divine favor ; in the holy district recently conquered by us, (the said village is bestowed) free from military-billeting¶(?)—where the rāja's deer and cattle shall not graze\*\*—not subject to provide flowers and milk††. Where shall be neither spy, nor royal-chair, nor magazine ‡‡. .... §§? in which the inhabitants shall not be liable to *bēgār* or forced labour ;—along with its buried treasures and such like :—and with all its stock and the like ;—as long as the sun and moon shall endure, to be enjoyed by him, his sons and descendants. Let none prevent or oppose ; but defend (his possession)—and let him enjoy all increase by cultivation. Whoever shall disobey this order, or make encroachment or abstraction by himself or through others, shall be liable to fine or punishment before the judicial authorities.

Written by the pandit of the general BAPPA DEVA in this court of justice (*Dharmadhikaranē*). Whatever pious fame has accrued to princes

\* Vishnu. † The sense of this passage is obscure—one pandit by alteration to *सूर्योपरागे* would make it express “ at a solar eclipse ”—a common period for dating similar documents.

‡ *Pravarddhamān rajya Samvat* ?

§ *Bhartas'chhānrāscha*.

¶ *Avatacchatraprāvēsya*—all the succeeding epithets laudatory of the jagir are equally far-fetched and obscure.

\*\* *Apāramparagobalivarddah*.

†† *Apashpakshīrasandoha*.

‡‡ *Achārāsana-varmangara* (for *ūgāra*). It was customary with rājas to keep an *A'san* or throne, a spy and armour at each village.

§§ *Alivanatlinvakrenidhanatra* ? *Sarvavishti-parihara parihrita* ?



of yore from similar acts should be remembered, and those who come hereafter should uphold them—(?). The holy Vyas has the following two verses to this effect:—

“He who bestoweth land on brahmans shall enjoy 60000 years’ happiness in heaven; and he who resumeth it shall abide an equal term in hell. If he take away either by himself or by others, his sin is equal to that of the slaughter of a hundred thousand cows.”

*Inscription No. 6, of the Asiatic Society’s Museum.*

I have inserted this inscription in my series because it possesses an exact date, and because the original was not given in facsimile by Mr. COLEBROOKE when he transcribed its contents in his notice of various inscriptions in the ninth vol. of the *Researches*, page 433. There are, moreover, several letters misread in that copy from an imperfect acquaintance with the changes they have undergone in the course of ages: of these the *bh* is the most prominent, being taken from an *s*\*. The *Sárnáth* inscriptions of the same century have taught us its real value.

Still with these emendations the context hardly bears complete explanation, though the general object is clear. It states that in *Samvat* 1093 (A. D. 1035) on the 1st of the light half of *Asárh*, the paramount sovereign YASO PÁLA of *Káte* at the village of *Payahása* in the kingdom of *Kausambhí* (or *Delhi*) issues commands to the principal persons. . . . The following is the transcript as recompared with the original on the stone.

संवत् १०९३ आषाढ शुद्धि १

अद्येह श्रीमत्कटे महाराजाधिराजश्रीयशःपालःकोसाम्बमण्डले पयहासग्रामे महान्त  
मनुसमादिशति यथापभोसेकीयमायुरविक्रय शसनत्वं प्रसादीकृत्य सत्वभाग  
भोधाकरहिरन्यपत्न्यायादिकं मस्त्रौपनतयामिति दसवन्नेन सहयिकं ढालदत्तं  
पौत्रान्नाम, . . . . . दं

*Inscriptions from Chunar.*

The two fragments inserted in Plates XXXI. and XXXIII. were presented by Capt. CUNNINGHAM, along with the stone in more perfect preservation published in a former plate. All that can be said of either is, that as the name of SWAMI-RA’JA appears on one, they probably relate to similar objects described by the larger one, viz. the repairs of public buildings in the fort of Chunar.

The *Buddha gaya* inscription of Plate XXXIII. was alluded to in my last notice.

\* The *s* of this character enabled me to read some Ceylon coins of the same century.

VI.—*Some remarks on the development of Pollen.* By WILLIAM GRIF-  
FITH, Assistant Surgeon, Madras Establishment.

Pollen of *Pardanthus Chinensis*, KER. Nat. Order *Irideæ*.

At the earliest period submitted to examination, and when the perianth scarcely exceeds half a line in length, the anthers are sessile and nearly perfectly formed. The cells, of which (as is perhaps the case in all bilocular anthers) there are four, contain a solid grumous semi-opaque mass, which is easily detached from the cell by slight pressure. This mass under a lens whose focal distance is one-twentieth of an inch, shews evident traces of cellularity, but the outlines of the cells are very faint. They are entirely filled with exceedingly minute granular matter. At a somewhat later period the cellularity of the mass is more obvious, but no separation of the component parts has taken place, and the cells are still entirely occupied by the granular matter.

When the perianth has attained the length of a line and a half, the mass will be found to have become externally of an orange colour, and traces of a proper enclosing membrane, the cells of which are extremely indistinctly marked, are now visible. The membrane appears to have no connection with the interior of the loculus. The cells composing the mass have undergone some separation. They consist of a hyaline membrane which appears to be of some thickness; it is generally of a globular form, but often attenuate at one or both ends. The granular molecular matter which originally filled the whole cavity of the cell, now occupies a portion only, and never appears to lose its spherical form. When the perianth is two lines long, the proper membrane of the mass has become more distinct; its cells contain a good deal of granular matter of a reddish orange colour. The cells of the mass have become more separated, but have otherwise undergone no change; the semi-opaque nucleus presents traces of division most frequently into four, often into three, and very rarely into two portions. The division is more distinct towards the circumference of each cell; it may be observed in the same mass in every stage, from the commencement of the dividing lines to their meeting in the centre. The smaller masses or nucelli resulting from this division are each enclosed in a proper cell, but as yet have undergone no separation.

In the next stage the perianth had increased two-thirds of a line in length; the mass presented externally the same appearance. The component cells had increased in size, and the divisions of the nucleus had in many cases undergone complete separation from each other,

and in all were separable by slight pressure. Each of these divisions is at this period a young grain of Pollen. On making their escape they leave their proper cells attached to the interior of the parent cell, which is hence divided into as many cells as there are divisions of the nucleus. The young grains are oblong-ovate, flattened on their contiguous or inner faces, and open along the centre throughout the whole length of their outer faces. They are even at this period reticulate, and have rather a papillose appearance; they are lined by an inner membrane in the form of a hyaline sac which bulges out slightly along the opening just mentioned.

When the perianth is three lines long, the grains of Pollen have undergone complete separation; no traces of their original envelopes being visible. They vary much in size, are rather opaque, minutely reticulate, and marked along one side by a longitudinal semi-transparent line, which indicates the situation of the original opening, now closed up by the inflection of its edges. Immersion in water produces scarcely any action on them. At a later period, the perianth measuring five lines in length, the grains are considerably increased in size. Immersion in water causes the inflected margins of the furrow to secede, until they become widely separate. Through this the inner membrane bulges out to a considerable extent.

Perianth about six lines in length: the Pollen is now perfectly formed; the grains vary much in size, the smaller being probably abortive, but they all undergo the same changes on immersion in water. This causes the outer coat to be pushed back by the expansion of the inner, which is now nearly filled with minute granular matter.

At the time of dehiscence of the anthers the grains vary much in size: the more perfect are lanceolate in outline, of an orange colour, distinctly reticulate or cellular, and open on one side along the centre. This, however, is perhaps to be attributed to the excessive moisture of the climate. Immersion in water causes the very rapid bulging out of the inner membrane, which pushes back, and at length nearly entirely off, the outer one. This is filled with minute granular matter, the fovilla and burst of the immersion is somewhat protracted.

Stigmatic action causes the production of a tube or boyau from the inner membrane, the head of which tube continues to be covered partially by the outer coat.

This instance is interesting as an example of the development of Pollen by the division of an originally simple nucleus and of perfect and almost spontaneous separation of the outer coat, and lastly as

pointing out clearly the nature of the longitudinal furrows of such common occurrence in the ordinary forms of Pollen.

In the two other instances which I have selected as demonstrations, the steps are much the same. Care must be taken not to confound the appearance presented by the Pollen of *Luffa fœtida* at a late period of its development, and which evidently arises from the strong inflection of the outer membrane, with that occasioned by the much earlier dividing process.

In *Hedychium* I have been unable to examine the development at a sufficiently early period, but it appears to me the divisions of the original or parent cell form the outer coats of the subsequent grains of Pollen: this is certainly not usually the case. The Pollen of this plant is remarkably simple, for it is neither provided with furrows nor apparent pores.

The inner coat,—for I am disposed to believe that it has one,—adheres strongly to the outer, and none of the ordinary means are sufficient to ensure its separation.

As I have, since a portion of the above was written, received numbers of the *Annales des Sciences Naturelles* for March and April 1835, in which occur extracts of considerable length from the writings of Mr. HUGO MOHL, who has published lately (1834) at full length on this important organ, it may not be amiss here to state the principal results to which this botanist has arrived; noticing, however, only those which relate to development and structure.

After pointing out that in by far the greater number of cases, the inner membrane, which contains the fovilla, is enclosed in a second membrane, M. MOHL proceeds to a detailed account of the outer membrane. This is represented as being always finer than the inner, and as generally determining the form of the grain; and that it is to the liquid secreted by it that the colour and viscosity of the grain is to be attributed.

The punctuation which frequently exist in this membrane are supposed to be rudimentary cellules; hence the comparison of this coat to a simple cellule is altogether inexact; it should be considered as an organ composed of cellules or the rudiment of cellules, and a homogeneous uniting membrane, and hence it should be compared with compound membranes; such, for instance, as those of the ovule.

It is only in a small number of plants that this coat presents the form of a perfectly closed, continuous, sphaerical sac; in most cases it is either furnished with folds or pores, or both.

Up to the period of M. MOHL's publication nothing whatever was known of the nature, functions, or number of these folds; most bo-



tanists, so far at least as may be judged of from their descriptions, considering them to be solitary. M. MOHL remarks, that in monocotyledones they are generally single, but that in dicotyledones the number is generally increased, and occasionally exceeds twenty. The portion that is folded in has always a different structure from the remainder, and is generally smooth and transparent; and it rarely ever happens that in cellular Pollen the inflected portion is itself cellular. He supposes that in all cases the outer membrane forms a perfectly closed sac, although in some Pollen the inflected portion has more of a gelatinous than a membranous consistence, and is ruptured by immersion in water. The apparent pores visible in the Pollen of many plants, M. MOHL states to be in all cases covered over by a thin membrane—to the existence of this membrane over the larger pores he speaks positively. In those cases in which the membrane covering the pore separates in the form of an operculum, it is attenuated alone along the margin of function or continuation with the remainder of the outer coat. These statements accord with the author's views of the nature of the supposed pores of cellular tissue; views, however, which have not been generally received, and which in the case of cellular tissue are open to weighty objections. The inner membrane is represented as always having the same structure; it is always completely homogeneous, very thin, and hyaline, and always exists as a shut sac. It is particularly remarkable for the facility with which it absorbs water; this M. MOHL looks upon as a physical action and as attributable to endosmosis.

The production of tubes (boyaux) by immersion in water, (and which are prolongations in all cases, except perhaps in *Coniferae*, of the immediate covering of the fovilla) never takes place in those Pollens, the outer membrane of which is perfectly closed, or the folds or furrows of which are unprovided with pores. But in every Pollen they are produced by stigmatic action. The action likewise exerted on the grains by this portion of the female organ is more energetic than that of water, producing twelve or fifteen times the diameter of the grain; while the longest, M. MOHL observed, produced by the action of water only exceeded the grain in length once, or once and a half.

I may here state, that M. MOHL has understated the length of the tubes arising from stigmatic action. The length will depend upon the distance between the part of the stigma to which the grains are applied and the foramen of the ovulum to which they have to be applied. Thus, for example, in *Zea mays*, the length of the tubes must be enormous, since the style itself is about a span long. It may be

objected, that there is no proof of the universal necessity of the application of the tube to the foramen, or that portion of the ovulum corresponding to this. Still there is ample proof of this necessity in *Asclepiadææ*; and, as I have observed it in *Solaneæ*, *Gentianeæ*, *Nelumboreæ*, and *Leguminosæ*, I have no doubt that the application of the tube to the foramen is absolutely necessary to insure fecundation. And with regard to the length produced by the action of water, I have seen tubes produced from the grains of Pollen in a species of *Impatiens*, I believe the *Impatiens tripetata* of Roxburgh, exceeding six or eight times the long diameter of the grain; these tubes, however, never even after protracted immersion contained any granules. Their growth in the above instance may be actually watched, the apex of the tube creeping along with an excessively slow vermicular motion.

M. MOHL states, that *Asclepiadææ* alone have no outer membrane. The existence of this membrane as a distinct integument has been proved by Mr. BROWN; although in almost all the species of this family, the outer coats are in a state of mutual adhesion\*.

*Coniferaæ* are said to have three coats; the intermediate one resembling the inner membrane of ordinary Pollen, especially in its great extensibility; in this property the innermost, although it has the ordinary structure of inner membranes of other Pollens, is deficient.

As I have mentioned before, this author considers the outer membrane as the secretory one, and he denies the possession of secretory powers by the papillæ; an opinion stated to be advanced by Mr. BROWN. M. MOHL proves that the secretion of oil is not limited to any papillosity of surface; of this *Pardanthus Chinensis* is an instance.

This botanist doubts the proper activity of the molecules or granules contained in the fovilla, and he adduces the authority of M. FRAUNHOFER as to the utter impossibility of preventing currents in liquids.

\* I find that the cells of the anther of *Oxystelma esculentum* are at an extremely early period lined by a free simple sac containing irregular masses of opaque granular matter; soon after, this cell appears to be filled entirely with the granular matter, by which it is rendered somewhat turgid. In this state it is detachable with extreme difficulty. When the flower bud is two lines long, the mass has become cellular, and the granular matter correspondingly subdivided. The subsequent changes consist merely in the increase of size and consistency of the parts, and perhaps in the development of the inner membrane. We may hence be allowed to infer that the mass, from which all Pollen grains seem to be developed, is in *Asclepiadææ* reduced to a single cell: and that the grains are produced by its indefinite division. The only material objection to this view exists in the original cell itself entering into the composition of the grains of Pollen; and in its not disappearing, as appears to be generally the case.

Still I conceive it impossible to doubt the inherent mobility of these granules. In some oily Pollens granules may be observed by the sides of excessively minute drops of oil, certainly not exceeding the larger granules twice in diameter; and yet the granules will be seen in active motion, and the oil perfectly stationary. M. MOHL contradicts positively the curious fact advanced by M. ADOLPHE BRONGNIART, that the granules are in some plants of the same size. Of this I certainly have never met with an instance. He likewise doubts the curvature of some molecules; but as Mr. BROWN and M. BRONGNIART speak positively on this point, I should prefer adopting their testimony.

It is, likewise, said, that the idea of the granules nourishing the tubes is untenable, and founded only on conjectures. But as it invariably happens that the longer the tube is the fewer the granules are, this opinion, which was I believe first indicated by the highest of all authorities, Mr. BROWN, cannot be said to be destitute of foundation.

With regard to the development of Pollen, M. MOHL states that his observations entirely confirm those of M. BRONGNIART, and that the Pollen is formed from the granular matter contained in the cells of the parenchymatous mass, which exists in each cell of the anther. But although M. BRONGNIART certainly appears to have been the first to have observed the formation of pollen by division, yet his account in his "Memoire sur la generation et le developpement de l'embryon dans les vegetaux phanerogames," is certainly not characterised by that precision which exists in the account of the development of the Pollen in *Tradescantia virginica* by Mr. BROWN, and subsequently in that of *Cucurbita Pepo* by M. MIRBEL.

This latter, indeed, was the first instance examined by M. BRONGNIART, who states that what are now known to be lines of division result from pressure. It still remains to be proved whether in any instance the formation takes place, as M. BRONGNIART says it does, in *Cucurbita Pepo*, by the cellules of the mass contained in the cavities of the anthers becoming directly grains of pollen. M. MOHL mentions many instances in which the quaternary division is resorted to; it is owing to the continuance of the original adhesion that the pollen of many plants is compound. The number, however, is not in every case thus limited: the generality of the species of *Mimosa*, *Acacia*, *Inga*, have pollen composed of sixteen cellules. But on the development of these no direct observations have as yet been given. The number of masses into which the originally simple nucleus may be divided, is almost as frequently three as four. Of the binary composition of the mature Pollen *Podostemon* affords the only instance as

yet known to me, but this may obviously arise as well from a quaternary as a binary division of the nucleus.

M. MOHL rejects very properly as highly improbable the opinion of M. BRONGNIART, that the granules of the fovilla are secreted by some part of the inner surface of the cells of the anther, and that they reach their destination, the cavity of the inner membrane of each grain, by absorption. It must, however, be remembered that M. BRONGNIART alludes to this mode of formation and transmission with considerable doubt.

Lastly, M. MOHL notices the extreme similarity between the formation of the pollen and that of the sporules of the more developed *Cryptogamia*. I am not aware who first pointed out this curious analogy, which cannot well have escaped any one who has examined both formations at a sufficiently early period. My first knowledge of it is due to M. MIRBEL, who pointed it out to me early in 1832\*.

*Explanation of the figures, Plate XLI.*

1. Portion of a mass extracted from a loculus; perianth 1 line in length.
2. Ditto ditto; perianth  $1\frac{1}{2}$  line in length.
3. Three of the component cells of a mass; perianth  $1\frac{2}{3}$  line long.
4. Four similar cells more developed; perianth about 2 lines long.
5. Portion of a mass enveloped in its membrane, extracted from the cell of an anther; perianth 2 lines in length.
- 5a. Two of the component cells detached.
6. Four of the cells detached: (perianth  $2\frac{2}{3}$  lines long:) viewed in different aspects:—from one, three nuclei have escaped, and the fourth is half exerted.

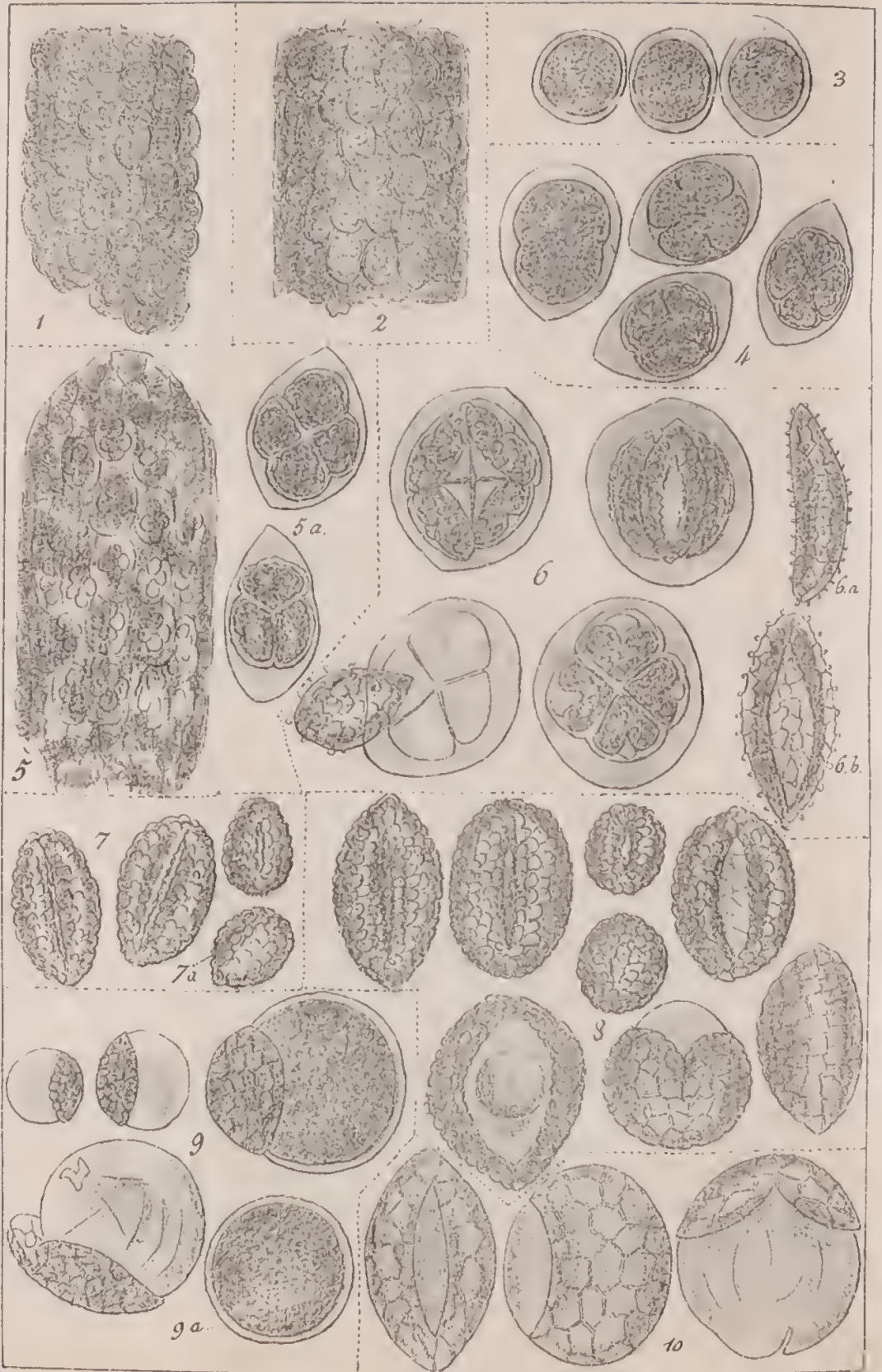
\* *Equisetaceæ* do not, as might be supposed from their late elevation into an order of *Gymnospermæ*, differ from the higher forms of *Cryptogamia* in the development of their sporula. The spiral fibres, as might be expected, are of comparatively late appearance, and they are developed on or in a loose membranous coat, no traces of which are to be found until the sporula have assumed their proper form. The fibres subsequently, and about the time of the development of the fibres of the cells of the inner parietes of the capsules, become free, the membrane to which they were attached remaining as an envelope to the sporule, from which it subsequently becomes separable with facility. The granules are of still later appearance.

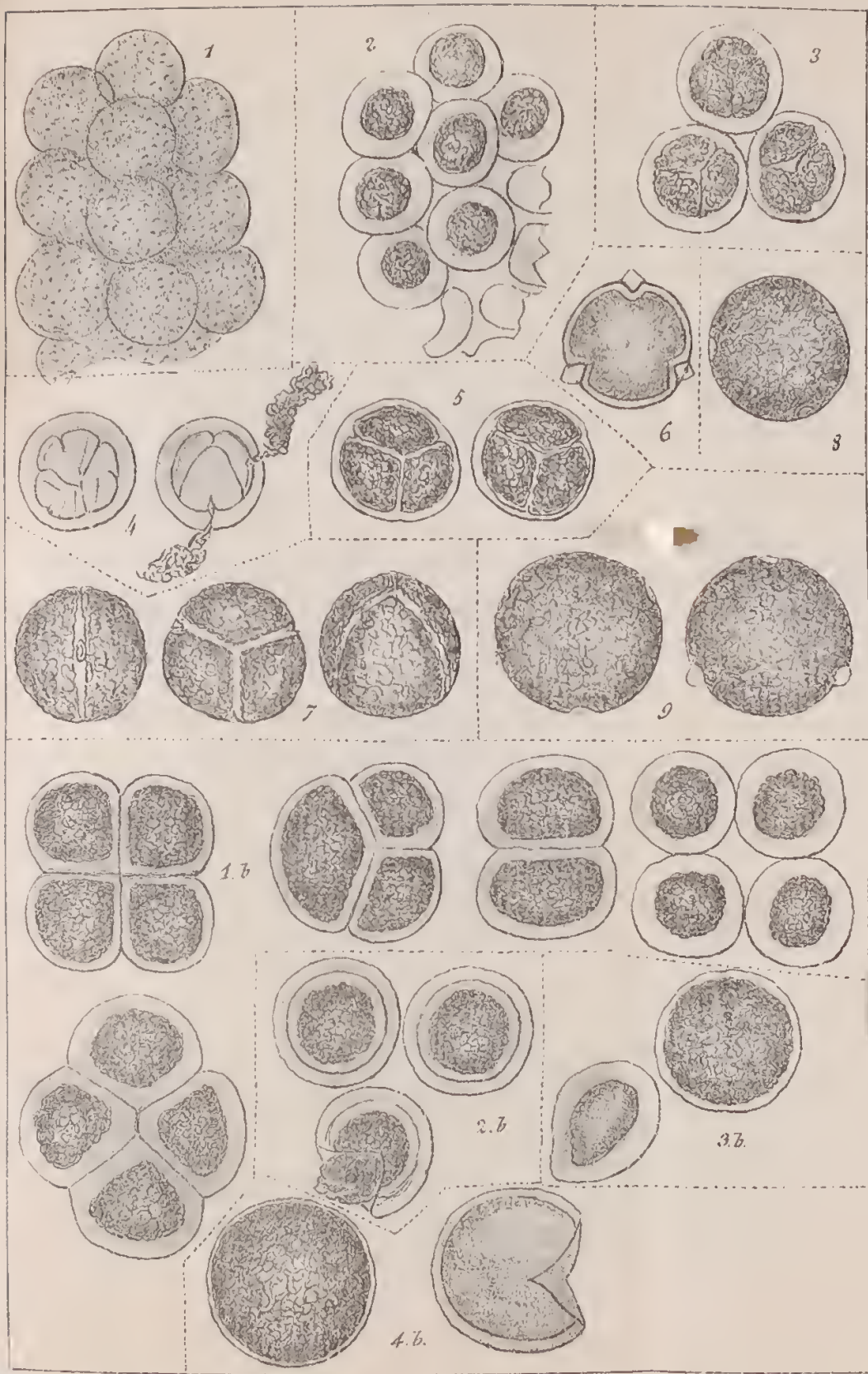
To the correctness of the chief portions of the above statement I can speak with tolerable confidence, but I only infer that the hyaline envelope of the perfect sporule is the mature state of the tunic, to which the spiral fibres are originally attached.

There would hence appear to be no foundation whatever for the adoption of the idea of the sexuality of *Equisetaceæ*,—an idea very likely to meet with advocates from its extreme ingenuity. The analogy of the fibres or supposed filaments is to be looked for in the elaters, and of the tunic or envelope in the tunic of the sporules of many *Hepaticæ*.













6a. Lateral view of the nuclei or young grains of Pollen.

6b. Vertical view of ditto on its outer face.

7. Pollen immature : the perianth being 3 lines in length.

7a. Represents what was the inner face prior to the escape of the nucleus from the cell.

8. Pollen viewed variously ; perianth 5 lines in length, shewing the various degrees of expansion of the fissure according to the length of immersion.

9. Pollen : perianth  $6\frac{1}{2}$  lines long. 9a. Inner membrane escape.

10. Perfect Pollen. 10a. Grain viewed as an opaque object.

*Plate XLII. A.*

Pollen of *Luffa fœtida*.

1. Portion of a mass extracted from one of the cells of an anther : flower-bud one and half line long.

2. Portion of a mass more advanced : the component cells adhering together firmly. Flower-bud about two lines long.

3. Cells of a mass more advanced : they cohere very slightly. Perianth two and half lines long.

4. The same submitted to slight pressure, shewing that each nucellus is contained in a separate cell.

5. Cells more advanced.

6. Pollen perfectly formed, but destitute of granules. Flower-bud about three and half lines long.

7. Three grains of Pollen considerably more developed ; in the centre of each fold there exists a pore. Flower-bud four lines long.

8. Pollen : the folds have disappeared. Flower-bud five lines long.

9. Perfect Pollen.

All more or less magnified, and all examined in water.

*Plate XLII. B.*

Pollen of a species of *Hedychium*.

Fig. 1. Five *original* cells in various states of composition and cohesion. Perianth three lines long.

2. Grains of Pollen resulting from the complete separation of the above : an inner disc is visible at this period. One grain has burst by pressure.

3. Two grains of Pollen, one abortive. Perianth one inch long.

4. Perfect Pollen : one grain ruptured by pressure.

All more or less magnified, and all viewed in water.

VII.—*Sub-Himálayan Fossil Remains of the Dádúpur Collection.* By  
Lieuts. W. E. BAKER and H. M. DURAND, *Engineers.*

QUADRUMANA.

LYELL, when combating the inconclusive evidence advanced in support of the theory of the progressive development of organic life, notices the absence of remains of quadrumanous species in a fossil state, and the hypothesis which this circumstance has by some geologists been considered to countenance. He, however, draws attention

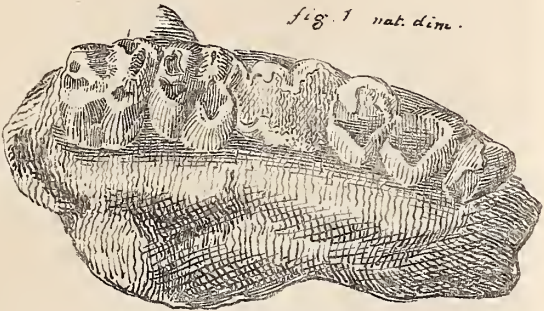
to the fact, that the animals which are found in sub-aqueous deposits, are in general such as frequent marshes, rivers, or the borders of lakes, and that such as live in trees are very rarely discovered; he adds, moreover, that considerable progress must be made in ascertaining the contemporary pachydermata before it can be anticipated that skeletons of the quadrumanous tribes should occur. Considering the great number of relics assignable to the *Pachydermata*, *Ruminantia*, and *Ferae*, which the Sub-Himálayan field has produced, it is not therefore surprising that at length the half jaw of a quadrumanous animal should be brought to light: the circumstance, however, being interesting in several respects, we have not deferred its communication until further research should put us in possession of more perfect specimens; the chances are against the probability of more being brought in for some time—in the interval it may be as well at once to add to the Sub-Himálayan list of fossils one species belonging to the order of the quadrumana.

The specimen in question was found in the hills near to the Sutlej, and it appears from the attached matrix to have been derived from a stratum very similar in composition to the one described as occurring at the Maginund deposit. The fragment consists of the right half of an upper jaw; the molars as to number are complete; but the first has lost some of its exterior enamel: and the fifth has likewise had a portion of the enamel from its hind side chipped off. The second and third molars are a good deal worn, and the state of the fourth and fifth such as to indicate that the animal was perfectly adult. The canine is small, but much mutilated, its insertion into the jaw and its section being all that is distinct.

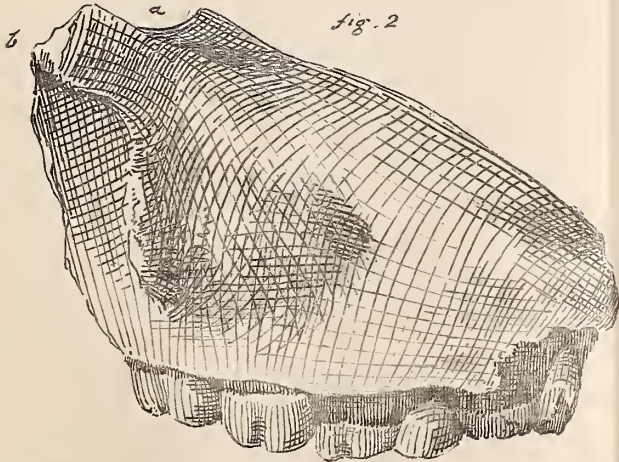
From the inspection of the molar teeth, the order to which the animal belonged is sufficiently evident; but there is enough of the orbit remaining to afford additional and very satisfactory proof; the lower part of the orbit and the start of the zygomatic arch being very distinct, would alone remove all doubt from the subject; the orbits of the quadrumana being peculiar and not easily to be confounded with those of other animals.

On comparison with the delineations of the dentition of this order of animals given by F. CUVIER, the fossil bears some resemblance to the genus *Semnopithecus*; the section of the canine and the form and size of the false molars are very similar to the exemplar taken by F. CUVIER from a head of the species *Maurus*, a species found in Java: had the drawing been taken from the *Entellus*, a species which inhabits India, the comparison would in this instance have been more

*Sub Himalayan fossil Remains*



*Quadrumana*



*Baker des.*

*J. Prinsup. 1844.*





satisfactory; the *Maurus* being chosen as the type, and no mention made of other difference except length of canines, the various species may be supposed to present no material departure from the type in form of molars. The third molar in the fossil is so much worn as not to admit of being compared with drawings from unworn teeth; the fourth is like that of the *Maurus*, but the fifth does not resemble the analogous molars of any of the existing species as represented by F. CUVIER, for the fossil tooth possesses a small interstitial point of enamel at the inner side, which does not appear to have place in any of those delineated. The incisors are absent, but the intermaxillary is clearly distinguishable.

Were it not for the size of the canine and the fifth molar, the specimen presents some resemblance to the genus *Macacus*, given as the type of the genera *Macacus* and *Cynocephalus*; the smallness of the canine and the large size of the molars causes the fossil to approach more nearly to the *Semnopithecus* than to the *Macacus*; the difference is, however, great between the two, for the *Entellus* is said to attain the length of three and a half feet, whereas the length of the fossil animal, if the space occupied by the molars and their size be deemed sufficient ground for a conjecture, must have been equal to that of the *Pithecus Satyrus*—the space taken up by the molars is 2.15 inches. This circumstance, and the differences before pointed out, clearly separate the fossil from the species belonging to the genera *Cynocephalus* or *Semnopithecus*. The specimen is imperfect, but it indicates the existence of a gigantic species of Quadrumanous animals contemporaneously with the Pachyderma of the Sub-Himálayas, and thus supplies what has hitherto been a desideratum in Palæontology—proof of the existence, in a fossil state, of the type of organization most nearly resembling that of man.

NOTE.—Fig. 2 in the Plate is a little foreshortened in order to show the bottom of the orbit at *a*, which in an accurate profile view is hidden by the ascending part of the orbit, the section of which is seen at *b*.

Both figures were taken with the camera lucida.

VIII.—*Descriptive Catalogue of a collection of Land and Fresh-water Shells, chiefly contained in the Museum of the Asiatic Society. By W. H. BENSON, Esq. B. C. S.*

PART 2.—FLUVIATILE SHELLS.

(Continued from page 358.)

19. *Planorbis umbilicalis*. Testa quasi dextrâ luteo-corneâ, politâ, leviter radiato-striatâ, infrâ excavato-depressâ, anfractibus omnibus versus umbilicum profundum spectantibus, ultimo interiores penè

tegente ; suprà convexâ, versùs apicem planatâ, apice concavo, omnibus anfractibus satis apparentibus : periphæriâ obtusè angulatâ. Diam. 0.3 poll.

This shell, belonging to the same division of Planorbis as the British species *Pl. fontanus*, (*Pl. nitidus*, LAMARCK,) in which the whorls on the inferior side are nearly covered by the succeeding ones, may easily be distinguished from that species, which it resembles also in colour, by the greater convexity of the last whorl towards the periphery, and by the slope towards the penultimate whorl, on the under side ; while in *Pl. fontanus* the convexity is next to the penultimate whorl, and the slope tends towards the circumference. The disposition observed in *Pl. umbilicalis* occasions a great concavity on the under side of the shell. The superior margin of the aperture, as in most of the depressed Planorbes, projects much behind the inferior margin, occasioning a great obliquity from the plane of the axis. The North American species *Pl. deflexus* and *Pl. exacuens* of SAY, more especially the latter, have an affinity to this shell, which is probably an inhabitant of the streams of *Silhet*.

20. *Planorbis trochoideus*. Testâ quasi dextrâ diaphanâ, subtrochiformi, suprà glabrâ, rotundato-convexâ, apice concavo-depresso quasi umbilicali ; anfractibus omnibus parùm apparentibus, saturâ excavatâ divisus ; infrâ radiatim striatâ, truncatâ, planatâ, umbilico contracto. Anfractu ultimo majori reliquos amplectente, suprà penè, infrâ omninò obtegente ; periphæriâ acutâ.

The last whorl altogether conceals the other whorls on the lower face of the shell, leaving merely a contracted umbilicus in the centre, towards which the flattened surface declines. On the upper side only a small portion of the depressed spire is shewn, the whorls being rather compactly wound. The species differs from all others hitherto described in the singular truncated form of the inferior surface, and in the circumstance of the last whorl winding closely round the axis, as in many *Helices* and *Trochi*, without the intervention of the preceding whorls, none of which are visible in the very contracted umbilicus. The only shell of the genus which bears any very near resemblance to it in the formation of the under side, is *Pl. fontanus* of British authors, (*Pl. nitidus* of LAMARCK,) the umbilicus of which is unusually contracted when compared with other species of the genus, but still exhibits within its vortex the whole of the preceding whorls, and so does not deviate from the recorded generic character ; while the species now brought to notice renders nugatory, as far as it is concerned, two important characters of Planorbis, viz. “ anfractibus omnibus utrinque conspicuis,” and “ aperturâ ab axe remotissimâ.” For the

present, considering that a similar variation of character in *Trochus* and *Helix* has not prevailed to separate species from those genera, I have not thought it necessary to detach *Pl. trochoideus* from *Planorbis*, but am inclined to consider it as one of the terminal species; merely prefixing to each of the characters above quoted the word "crebrius."

As this form does not belong to the *Silhet* collection, and is an inhabitant of the neighbourhood of *Calcutta*, I intended to have included it in a paper on some other new Bengal species; but as it is desirable, in consideration of its interesting and anomalous structure, that its publication should not be delayed until I can devote leisure to their description, I seize the present opportunity for making it known.

The only specimens met with were taken by me, in August 1835, in the gardens of *Barrackpur* Park, near a tank, on the margin of which are some artificial ruins. They inhabited large earthen vessels filled with water, containing aquatic plants, and adhered to the prone surfaces of the floating leaves in company with a small *Planorbis*\*, and a small lengthened *Lymnæa* which approaches in its characters to *L. chlamys* of this catalogue.

21. *Planorbis compressus*, HUTTON, J. A. S. vol. iii. p. 91, No. 12.

The *Silhet* specimens scarcely differ from weathered individuals of Lieut. HUTTON's shell, in which the extremely delicate carina, which margins the angular periphery in perfectly fresh specimens, is more usually found to be obliterated. The depressed whorls are equally visible on each side, and are highly polished in recent examples. They occur in great perfection near *Banâras*, adhering to the floating foliage of *Trapa natans*, and occasionally swimming at large on the surface of *jhîls*. This is the species alluded to by me as *Planorbis B.* in page 264, vol. i. *Gleanings in Science*, and figured as No. 10, Plate VIII.

22. *Planorbis Indicus*. *Pl. corneus*? HUTTON, J. A. S. vol. iii. p. 90, and BENSON, *Gleanings in Science*, page 264, Plate VIII. fig. 6.

Testâ discoidea, albidâ vel corneâ, supernè plano, suturis excavatis, umbilico depresso; subtùs planato-depressâ, latè umbilicatâ; anfractibus ventricosis transversè profundè et eleganter striatis ætate vari-cibus munitis. Aperturâ rotundatâ, auriformi, minimè obliquâ.

*Pl. Indicus* is scattered over the whole of the Gangetic provinces, and scarcely a pool of water can be found destitute of it. The *Silhet* specimens prove to be a small corneous variety occasionally to be

\* I omitted to take specimens of this shell, which is either *Pl. compressus* of HUTTON, or a new *Calcutta* species, *Pl. nanus* mihi, which is very similar to the British species *Pl. albus*.

met with to the westward. In some waters the species attains a great size, being 0.9 of an inch in diameter, and nearly equalling in magnitude *Pl. corneus*, which it resembles in general appearance, but from which it will be found to differ in the depth and regularity of the striæ, in the comparatively less profound excavation of the sutures on the upper side, and less profoundly sunk apex, as well as in being somewhat less ventricose. The animal is most commonly of a black olive colour, occasionally dark maroon red.

In the foregoing descriptions of *Planorbis* I have used the words upper and lower with reference to the faces of the disc which adjoin respectively the back and foot of the animal when creeping. The animal of *Planorbis* is undoubtedly sinistral, but if the shell be viewed as such practically, and placed with the side which would in a sinistral shell be accounted the apex uppermost, it will be found that the animal is on its back, and that it will have to twist its body half round in order to gain the ground with its foot; and that in order to creep with any ease, it must reverse the position of its shell. This will be more especially observable in the flatter and more oblique mouthed species. I propose, therefore, to consider that face as containing the apex, in discoid shells, which is contiguous to the back of the animal. This side may invariably be known in *Planorbis* by the greater projection of the lip in that part, by the deeper depression of the central umbilicus, and by the more considerable involution of the whorls occasioning a greater depth of suture.

Observers have, in general, adhered to no fixed rule on the subject, and have been guided chiefly by the aspect of the shell. TURTON's characters of *Pl. fontanus* and *Pl. contortus* afford an instance of the same side being considered the upper in one species, and the lower in another. LAMARCK was more consistent, and while he rightly viewed the shell as sinistral, called, in every species, that side of the shell which is contiguous to the back of the animal, the lower face. On the other hand, it is evident, from SAY's description of *Pl. deflexus* and *Pl. corpulentus*, and from his denominating those species dextral, that, in those shells at least, he has followed the contrary rule.

23. *Lymnæa chlamys*. Testâ translucente, corneâ aut castaneâ, elongato-ovatâ; spira gracili, brevior, acuminatâ; anfractu ultimo infrâ præcipuè ventricosus; suturis parcè depressis; aperturâ infrâ patente, basi leviter evasâ.

The *Lymnæa* in the *Silhet* collection is the chestnut-coloured variety. The paler kind is met with in great perfection in *Lehtâra jhîl*, near *Banâras*, in company with *Planorbis compressus*, and another fine *Lymnæa* which I designate as *Lymnæa Butta*. The *Silhet* shell has an



eroded spire, and consequently wants the graceful appearance of the western variety. I at first described it as a distinct species, but a comparison with a good series from *Banâras*, where the species is very variable, has led to their reunion.

Lieutenant HUTTON has referred the species with a mark of doubt to *L. limosa*, which it in no wise resembles. In perfect specimens the spire occupies about one-fifth of the total length. Greatest length of the shell 1.4 inches.

24. *Paludina oxytropis*. Testâ tenui ovato-conicâ olivaceâ, decussatim striatâ; anfractibus supernè carinis plurimis fuscis ornatis, ultimi carinâ mediâ saliente subacutâ; infernè fasciis quibusdam elevatiusculis fuscis; suturis inconspicuis; apice acutâ; canali umbilicali excavato; aperturâ intùs violaceâ, peristomate acuto, nigro. Long. 1.7 poll. Lat. 1.3.

This is a very remarkable and elegant species. Some of the specimens are, I believe, much larger than the one described.

25. *Paludina Lecythis*. Testâ tenui, globoso-conicâ ampullaceâ, olivaceâ, glabrâ, rugis obsoletis decussatâ; spirâ obtusiusculâ; anfractibus valdè ventricosis, rotundatis; suturis excavatis; aperturâ intùs violaceâ spiram longitudine superante; peritremate nigro, subreflexo; umbilico evanescente.

The striæ of growth, or rather the indications of former lips, are very frequent and prominent near the back of the outer lip; the rest of the shell presents that facet-like appearance which is so remarkable in some *Lymnææ*. I was at first inclined to consider this shell to be GRAY's *Pal. Chinensis*, figured, but not described, in GRIFFITH's CUVIER; but our shell is much more ventricose, the sutures are more pronounced, and it is deficient in the angular appearance observable at the base of the aperture in the Chinese species. It is a very thin shell in proportion to its volume. The epidermis is greenish olive in young specimens, reddish fuscous in the adult. Long. 2 poll. Lat. 1.7.

25½. *Paludina Bengalensis*, LAMARCK. Idem. var. *balteata*, fasciis elevatiusculis.

26. *Paludina crassa*, HUTTON's MSS. and J. A. S. vol. iii. p. 90, No. 5.

Testâ ovato-conoideâ, ventricosâ, solidâ, pallidè virente, obsoletè fasciatâ, rugis exilissimis decussatâ; anfractibus tumidis, suturis excavatis; spirâ obtusâ; umbilico subcanaliculato; aperturâ intùs lactescente. Long. 1 poll.

This species varies in configuration even in the same waters, some specimens approaching to a subglobose form, while others have a

more lengthened conoid spire. It is very abundant in the river *Gúmtí* at *Jónpur*, where it is paler, and has a more yellowish tinge than the *Silhet* variety, which, from having an eroded summit, appears to have inhabited stagnant water. It has a singular habit, for the genus, of burying itself in the mud or sand in shallow water, often in large societies; other species conceal themselves in the mud in the season of drought, but *P. crassa* does so from choice, and is impelled by no such necessity. The shell of the lately excluded young is so depressed and globular, that it might be easily mistaken for a young *Ampullaria*. The adult shell attains a degree of thickness unusual in the genus.

27. *Paludina pulchella*. Valvata, No. 9, HUTTON, J. A. S. vol. iii. p. 90.

Testâ ovato-conicâ leviter striatâ, epidermide olivaceâ; anfractibus rotundatis, suturis depressis. Aperturæ peritremate nigrescente; umbilico arcto. Long. 0.3 poll.

Aperture occupying half the length of the shell.

28. *Ampullaria*. The specimens of this shell, which is common in Bengal, are much superior in size to any which I have met with west of the *Brahmaputra*. As I have reason to believe that the species is described, I shall content myself with this allusion to it. I should have considered it to be *A. fasciata* of LAMARCK, were it not that that species is said to have a corneous operculum.

29. *Melania variabilis*. Testâ elongato-turritâ solidâ olivaceâ vel piceâ, sub epidermide albidâ; anfractibus convexis transversè liris, longitudinaliter striatis et costatis; costulis anfractûs ultimi supernè nodulosus; apice plerumque truncato; suturis excavatis. Aperturâ intus violaceâ, columellæ basi sinuatâ.

Inhabits the river *Gúmtí* at *Jónpur*, and Tolly's nullah near *Calcutta*.

Var. A. Anfractuum inferiorum liris elevatis, nodulis elevatioribus. Inhabits river *Hághli* at *Calcutta*.

Var. B. Liris, medianâ exceptâ, obsoletis; nodulis subspinosus carinam humeralem coronantibus.

Var. C. Lævis liris costulisque obsoletis, anfractûs ultimi medio subcarinato, adulti nodulis humeralibus frugaliter sparsis.

Var. D. Anfractuum superiorum costulis obsoletis, ultimi et penultimi liris transversis costulis longitudinalibusque supernè serie duplici nodulosus.

Varieties B, C, and D are in the *Silhet* collection. The type specimens of several of these varieties would, if viewed apart, be easily mistaken for distinct species, but they melt into each other so gradu-

ally, occasionally shewing the characters of more than one variety combined in the same shell, that no doubt remains of their blending in one species. In Tolly's Nullah I took larger specimens than any in the collection; though at least four twists of the spire were defective, one individual measured 3.4 inches in length. The *Gúmtí* specimens are less liable to truncation, and in young specimens the apices are nearly perfect. I have not observed more than 12 whorls present in any specimen. I described the type of the species without a name as species A\* in the 13th No. of the *Gleanings in Science*. It was figured as No. 7, in Plate VII. vol. i.

30. *Melania Stephanus*. Testâ ovato-conicâ, gradatâ, plerumque deinde truncatâ globoso-ovatâ, olivaceâ anfractibus obsoletè fasciatis, transversè sulcatis, supernè planulatis, spiris brevibus validis coronatis; aperturâ albidâ subrotundatâ, supernè ferè angulatâ; labro subdenticulato.

This shell, which is very solid, approaches in form to *M. Amarula*, but differs from it in the configuration of the aperture, and in the comparative shortness of the whorls, as well as by the denticulations on the inner edge of the labrum. Among the numerous specimens which I had an opportunity of inspecting, only a single individual was perfect, and the greater number exhibited only two whorls, the remainder being truncated. This character I find to be an usual indication of habitation in stagnant water. The sulcations on the whorls are sometimes obsolete.

31. *Melania zonata*. Testâ ovato-conicâ, lævi, longitudinaliter striatâ, olivaceâ, zonis tribus brunneis fasciatâ; anfractibus leviter convexis, suturis minimè profundis; aperturâ albidâ ovato-oblongâ infrâ subangulatâ. Long. 0.85 poll.

This a very distinct and pretty species, with a strong epidermis. It is generally eroded at the apex.

32. *Melania Terebra*. Testâ elongato-turritâ, olivaceo-brunneâ, lævi, politâ; anfractibus tumidis; suturis excavatis; sinu inter basin labri columellamque nullo. Long. 1.05. Testa truncata.

It is distinguished from the young of the smooth variety of *M. variabilis* by the want of angularity at the centre of the lower whorl, by its polished epidermis, more tumid whorls and more deeply sunk sutures, as well as by the absence of the sinuation of the inner lip which characterizes that species. The apex of the shell is more or less truncated.

33. *Melania conica*, GRAY? Testâ solidâ, globoso-conicâ, longitudinaliter striatâ plerumque transversè obsoletè sulcatâ; anfractibus, ultimo ventricosò cæteris rapidè diminutis; suturis bene signatis; aperturâ

ovatâ, intûs albidâ, fasciis quibusdam castaneis ornatâ; labro intûs denticulato.

This species resembles so closely the figure given in GRIFFITH'S CUVIER, Pl. 14, f. 3, as *Melania conica* of GRAY, that I am unwilling to describe it as new, in the absence of a specific character of that shell. GRAY's figure, however, does not exhibit the obsolete sulcations of the shell under review,—an omission which may be attributed to the brown incrustation with which they are ordinarily obscured, nor the smoothed denticulations which ornament the interior margin of the right lip in our shell. Should it eventually prove to be distinct, it may be named *M. denticulata* from this character, which is also possessed in a minor degree by *M. Stephanus*. The spire is eroded in all the specimens which I have examined. Length one inch.

34. *Neritina depressa*. Testâ solidâ, sub-convolutâ transversè ovatâ, gibbosâ, olivaceâ, longitudinaliter purpureo-fusco latè strigatâ, strigis versus apicem angulato-flexuosis; spirâ depressâ; anfractibus sub-binis; peritremate integro acuto, sub-orbiculari; septo calloso magno; aperturâ parvâ, lunatâ, aurantiâ; labio sub-recto, medio emarginato, ibi denticulato.

Greatest transverse diameter 0.8 inch. The peritreme which surrounds the aperture and shelving callus is nearly free, and occupies nearly the whole face of the shell. All within it, including the septum as well as the aperture, is usually of a dull orange colour. When *weathered* the shell is whitish, with pink bands and zig-zag lines; the denticulations of the inner lip are occasionally obsolete. The individuals in the Society's collection are probably from the *Sundarban* rivers, as the species is common, adhering to wooden piles and brick-work in the Húghlí at Calcutta, as well as in waters which have periodical communication with it. The following species is so nearly allied to *N. depressa* that I shall describe it here for the purpose of instituting a comparison and pointing out the distinctive characters, although no example of it occurs in the collection.

35. *Neritina cornucopia*. Testâ solidiusculâ, convolutâ, subsym-metricâ, transversè ovato-acutâ, gibbosâ, pallide virente, punctis minimis nigris, interdum confluentibus, lineis longitudinalibus dispositis ornatâ; sporâ valdè depressâ; anfractu pone callum compresso, sub-mediano, minimè obliquo; peritremate acuto, libero, ovato, pene totam testam circumcludente; callo magno ingrescente; aperturâ lunatâ mediocri; labio recto totâ longitudine denticulato, medio emarginato.

Greatest transverse breadth 0.7 inch. At the first glance this shell would probably be mistaken for the last described species, from



which it differs more especially in the greater proportionate size of the aperture, in the perfect parallelism of the inner lip with the axis of the shell, its denticulation nearly throughout its whole length, instead of merely in the centre; in the compression of the whorl at the back of the callus, and its subcentral position, thereby occasioning the approach of the shell to a symmetrical configuration, and finally in its suite of colours. It is much less frequent than *N. depressa*. I have met with only two specimens, in the Húglí at Fort William, and in Tolly's Nullah, adhering to piles and bricks. The aperture is livid white, with blackish shades. The operculum, following the form of the aperture, is broader than in *N. depressa*, and its two costate teeth are more developed.

36. *Neritina tigrina*. Testâ globoso-conoideâ, corneâ vel olivaceâ, lineis subtilissimis, fasciis angulato-flexuosis, maculisque nigris longitudinaliter strigatâ; suturis obsoletis; anfractu ultimo ventricosus, infrâ suturam excavato-depresso; aperturâ obliquâ, intûs albâ; callo columellari maculâ luteâ notato; labio medio emarginato, infrâ projecto, emarginatione projecturâque ambabus denticulatis.

The specimens, in the collection, of this very handsome species are of an ordinary size. A fine individual which I took adhering to the piles which defend Fort William from the action of the Húglí, measures 1.35 inches in length. The operculum is very strong, and besides the two exerted mucrones at the lower part, have two strong radiating curved ribs on the inner surface, the central one of which forms, at its termination, a third mucro. In addition to the living examples which I met with in the River Húglí, I have a beautiful specimen which I captured in the aqueduct that supplies the old Course at Calcutta. When decorticated the ground of the shell is white; and the black markings assume a purplish hue.

Two other very distinct species of *Neritina* with oblique apertures inhabit the waters around Calcutta. I propose shortly to describe them as *N. retifera* and *N. obtusa*.

In all the species of *Neritina* of which I have seen the operculum, that accessory piece is smooth and polished, exhibiting only faint radiating striæ or striæ of growth; but in a ribbed *Nerita* which occurs at the embouchure of the Húglí, the exterior surface of the operculum is granulated like shagreen. Is this latter character permanent in the genus *Nerita*? if so, it will furnish an additional mark to distinguish the two genera.

37. *Navicella compressa*. Testâ transversè elongatâ, compressâ, luteâ, albidâ, vel corneâ, lineis munitissimis transversis diversè colo-

ra<sup>ti</sup>s, maculisque alternatis radiantibus decoloratis pictâ; dorso elevato; limbi extremitatibus emarginatis. Long. 0. 85, Lat. 0. 45 poll.

From the peculiar form of the aperture of this shell, it is evidently accustomed to adhere to the convex surfaces of cylindrical bodies of small diameter, probably the stems of shrubs growing in the water, to which the sinuous disk would exactly conform. The numerous specimens in the collection all possess the same feature, which is never observable in *Navicella tessellata* of LAMARCK. The last mentioned shell I discovered adhering in abundance to piles in the Húghlí river under Fort William, and more rarely attached to bricks in Tolly's Nullah. I have retained the name proposed for the new species by Dr. J. T. PEARSON.

#### ACEPHALA.

38. *Anodonta soleniformis*. Testâ elongatissimâ, posticè angustatâ, extremitate rotundatâ; anticè latiore, sub-alatâ, extremitate obliquè truncatâ: Natibus complanatis, inconspicuis, senectute oblitteratis, decorticatis; epidermide junioris fulvidâ, præter angulum umbonis viridi, salcis illuc vinis impressâ, ætate fuscâ. Long. 6 poll. Lat. prope apicem 1. 2, Lat. prope alam 1.5 poll.

This is a very interesting shell, being, in proportion to its length, the most elongated of the genus. The pearl of the interior is bluish, with a salmon tinge in old specimens, which are likewise much worn on the exterior surface, and have their posterior muscular impression very deeply marked, and, as it were, carious. The anterior muscular impression is considerably elongated under the transverse direction. With the exception of a minute species which inhabits ponds in *Bundelkhand*, this is the only *Anodonta* hitherto met with in this Presidency.

39. *Unio cæruleus*, LEA. Trans. Amer. Phil. Socy. vol. 4.

A compressed variety of this shell occurs in the collection.

40. *Scaphula celox*. Testâ elongatâ, tumidâ, læviusculâ, anticè angulatâ, inter umbonem extremitatemque anticam subito evasâ; carino umbonali compresso, costulâ obsoletâ contiguâ.

*Scaphula*: BENSON, Zoological Journal, Vol. 5, page 464-5, and Gleanings in Science, Vol. 1, Plate VII, fig. 2 and 3.

One or two examples of this rare fluviatile genus of Arcacea which I first discovered in the Jumna, and subsequently met with in the river Cane, occur among the shells brought from the Eastern frontier.

## IX.—Note on Zoological Nomenclature. By B. H. HODGSON, Esq.

If I revert to the comments of your anonymous correspondent upon my *Cervus Elaphoides*, (No. 52 for April,) it is because I think that a question of some moment hangs upon the judgment pronounced in this case, viz. the right to designate species, and the consequence of doing so from very imperfect knowledge.

According to your correspondent's own shewing, CUVIER never procured more than the horns of this deer; and, so conscious was CUVIER, ultimately, of his inability to fix the species upon a just basis, that, in his last edition of the *Regne\**, all mention of it is omitted. Meanwhile, however, he gave it a name, upon retaining which your correspondent insists, although your correspondent, in the very same page, exhibits the following practical consequence of such proceedings.

The first writer of the age upon the tribe of animals to which our *Cervus* belongs (H. SMITH) is entirely *misled* by CUVIER's insufficient definition, or rather designation, and ascribes this deer to the *Rusa* group! Now, it is a well known fact, that, although the more skilful general writers upon zoology have, of late years, omitted half the recorded species from inability to verify them, yet that, amongst the species inserted, no careful student can satisfactorily refer to one in ten! Is this system to go on? and, if not, is there any cure for it but a general resolution to admit no names of species which the nomenclator has not, at the time, or *subsequently*, verified?

Your correspondent has only to turn to those recent and costly works upon Indian Zoology, GOULD's *Century* and HARDWICKE's *Illustrations*, and he will find that the multiplication of idle names and of fictitious species is still going on, under the auspices of persons who neither have, *nor can have*, competent means of at once undoing past errors and preventing future ones. Press or picture, it is the same thing. Neither ought to be devoted, in permanent style, to the propagation of delusion and inconvenience; nor any ad interim labours of any man recognised, (except such as he has ultimately himself completed), if their recognition have that effect, at the same time that it interferes with the just reward of the ripe and adequate labours of others. *Finis coronat opus*: and, though it may be reasonable to admit temporarily all names, as an index and stimulus to discovery, as well as to sustain eventual claims, if advanced, yet those names alone are entitled to permanence which the affixers, sooner or later, connect with indisputable species. CUVIER himself

\* A new and amended list of all authentic species is given in this edition.

abandoned his name, because he could not eventually so connect it: and I confess I do not perceive upon what sound principle your correspondent insists upon the revival and retention of that name.

I beg to acknowledge the courtesy of your own note appended to the communication in question, and to state my conviction that Du VAUCEL most probably obtained the horns of the *Cervus Elaphoïdes* from me.

The observation of your correspondent—that the “suborbital depression on the skull of our deer is perforated by a very large oval hole, which is not found in the skull of the *Jaraï*”—wants, I believe, confirmation. Such holes are very usually found in the skulls of both species; but, so far as my experience goes, they are not proper to the *perfect* skull of either\*. After considerable inquiry amongst my friends to the westward, I have determined to retain the name of *Bara Sinha* for the *Cervus Elaphus*; those of *Maha* and *Bahraiya* for *Cervus Elaphoïdes*; and that of *Jaraï* for the only type of the *Rusa* group known to me. This animal is the *Cervus Jaraï* of HODGSON, precisely *because* he has found it utterly impossible to fix the shifting and insufficient specific indications of H. SMITH—a difficulty, by the way, which your correspondent seems to share, if I may judge by his somewhat loose allusion to “*Cervus Hippelaphus and Aristotelis* or *Rusas*” (in the plural.) May I hope for his valuable assistance in my endeavours to decide, whether there be really *more than one* species of *Rusa* in the Bengal Presidency? and *which* of the *several* named by H. SMITH it or they be? Let me request your correspondent to test the above remarks on nomenclature by applying them to the very difficulty just cited. I am content to abide by the issue!

[We have to apologize for so long delaying the publication of Mr. HODGSON's note, which has been lying in type at the printer's some months. We are very sure the correspondent to whom he appeals will assist in the desirable object of identifying and fixing Indian Species.—ED.]

\* If they *were*, we should be in the way of ascertaining the probable or possible truth of that startling assertion, that breathing takes place through the suborbital sinus. I have examined repeatedly fresh heads of several species with a view to this assertion: and my conclusion is that it *cannot* be true, unless breath can pass through bone and skin too: for, in the perfect skull there is no solution of continuity in either substance, within the limits of this sinus. *Without* and *above* the sinus, there is something extremely like such a solution, in the skulls of *Elaphus*, *Ratwa*, *Jaraï* and *Elaphoïdes*. But, even here, a *perfectly fresh* head will exhibit osseous or quasi osseous continuity; and the skin-fold is ever uninterruptedly carried through the sinus, though with much attenuation at the bottom of it.



X.—*Proceedings of the Asiatic Society.**Wednesday Evening, the 7th December, 1836.*

The Honorable Sir EDWARD RYAN, President, in the chair.

H. WALTER, Esq. C. S., Principal BRAMLEY, Dr. JAMES DRUMMOND, Nawab TAHAWUR JUNG Behadúr, Sháh QABIR U'DI'N, and Dr. R. A. JACKSON, proposed at the last meeting, were balloted for, and duly elected Members of the Society.

Mr. W. DENT was proposed by Mr. H. T. PRINSEP, seconded by the Secretary.

Mr. MANUK, proposed by Dr. STEWART, seconded by Mr. BAILLIE.

Babu HERAMBANA'TH THAKUR was appointed to officiate as Collector to the Society, during the absence of Babu RAM COMUL SEN, on a visit to the Upper Provinces.

The following reply from Government regarding the *Alif Leila* was read :

TO JAMES PRINSEP, ESQ.

*Genl. Dept.*

*Secretary to the Asiatic Society.*

SIR,

I am directed to acknowledge the receipt of your letter, dated the 7th ultimo, relative to the proposition of Mr. C. BROWNLOW, to publish at his own private risk a complete edition of the *ULIF LEILA*, or Arabian Nights' Entertainments, in the original Arabic, from a very complete manuscript purchased by him from the estate of the late Major MACAN, and requesting the same support to this work as has usually been accorded both by the local Governments, and by the Honorable Court of Directors to literary undertakings of a similar description.

2. In reply, I am directed to state that in compliance with the recommendation of the Asiatic Society, and in consideration of the manner in which the publication of this work has been undertaken, and of the credit that will attach to its completion in the manner proposed, his Lordship has been induced to subscribe for fifty copies at the price stated, viz. 48 rupees per copy.

3. The copies when printed will be appropriated for distribution as prizes in the Seminaries of Education at which the study of Arabic is cultivated, with the reservation of such number as the Governor of Bengal may present to the Public Libraries and Institutions of Europe or of this country. Mr. BROWNLOW may be desired to deliver the fifty copies at this office, where his bill for them will be discharged.

4. But the Right Honorable the Governor of Bengal cannot close the reply to this reference from the Asiatic Society, without expressing a strong desire to learn that the translation of the complete work is likely to be undertaken by some competent scholar of this Presidency. His Lordship will be glad to be informed of any scheme for procuring the accomplishment of this desirable object, that the Asiatic Society may be able to suggest and think deserving of encouragement.

I have the honor to be,

Sir,

Your most obedient servant,

H. T. PRINSEP,

*Secy. to Govt.*

*Fort William, the 2nd Nov. 1836.*

*Resolved*, that a copy of the reply be transmitted to Mr. C. BROWNLOW, the publisher of the work in question.

It was intimated that a gentleman in the Civil Service, eminently qualified for the task, had volunteered to make an English translation of the portions of the "*Nights' Entertainments*" as yet unedited.

The following letter from the Asiatic Society of Paris, brought out by the Chevalier General ALLARD, was also read :

*Société Asiatique, Paris, le 1 Mars, 1836.*

*Messieurs ;*

Les encouragemens que le Gouvernement Anglais dans l'Inde a accordés presque en tout temps à la publication des ouvrages classiques dans les langues savantes de l'orient ont toujours été regardés en Europe, comme un de ses plus beaux titres de gloire. Ces publications ont puissamment aidé au développement que les études historiques et philologiques ont pris depuis le commencement de ce siècle, et elles ont servi à répandre le goût des lettres orientales. Ainsi les ouvrages classiques publiés par le Comité d'Instruction publique de Calcutta, quoique destinés immédiatement aux écoles Indiennes ont rendu aux écoles de l'Europe les plus grands services. Ils ont commencé à remédier à la rareté des manuscrits sanscrits en Europe, et ont facilité l'étude d'une littérature dont l'importance pour l'histoire de l'esprit humain n'a pas cessé de s'accroître.

Le Comité avait donné, dans les derniers temps, l'espoir que l'on verrait encore s'agrandir le cercle de ses entreprises. Il avait annoncé que le Mahabbârat, le Râja Tarangini et plusieurs autres ouvrages de la plus haute importance, étaient sous presse, et qu'il préparait des matériaux pour une édition des Vedas et des livres sacrés des Bouddhistes. Ces annonces ont été reçues en Europe avec un intérêt marqué, et les savans ont suivi avec une grande sollicitude les progrès de ces ouvrages. Mais on a appris dernièrement, que le Gouvernement du Bengale a cru devoir suspendre toutes les impressions en langues Orientales, et destine les fonds qui devaient y pourvoir, à un but différent.

Il n'appartient pas à une Société littéraire de juger des raisons politiques ou financières d'un gouvernement étranger, mais la Société Asiatique croit pouvoir exprimer ses regrets qu'on ait abandonné des entreprises qui auraient servi les intérêts de la science, et qui auraient honoré la nation qui les avaient commencées. Aussi, a-t-elle sincèrement applaudi à la détermination que vous avez annoncée, Messieurs, de reprendre la publication de ces ouvrages, et elle désire vivement pouvoir vous aider dans l'accomplissement de votre plan. Elle vous offre en conséquence de servir d'intermédiaire entre vous et les Savans du Continent. Elle espère pouvoir trouver un nombre plus ou moins considérable de souscripteurs aux différent ouvrages que vous avez l'intention de faire paraître.

Si vous agréez ce plan, elle vous prie de lui communiquer la liste des ouvrages à publier, et les prix approximatifs de chacun. La Société redigerait alors un programme et une circulaire, pour faire appel à ses membres et aux divers corps savans, à fin d'exciter autant que possible l'intérêt du public pour les importantes publications de la Société.

Il est impossible d'apprécier d'avance le résultat de cette démarche, mais la Société croit ne faire que son devoir en donnant aux savans Européens les moyens de s'associer à votre généreuse entreprise.

Nous avons l'honneur de vous offrir, Messieurs, l'assurance de notre haute considération.

P. AMIDEI JAUBERT, *Président de la Société.*

EUG. BURNOUF, *Secrétaire de la Société.*

*Resolved*, that an appropriate reply be returned in the same form to the Asiatic Society of Paris, accepting with pride and satisfaction its generous offer of aid in promoting the completion of the abandoned oriental works, and of acting as the channel of their circulation and sale on the continent of Europe.

A letter from Major TROYER, tendered, in the same spirit, his service as agent to the Society at Paris, and acknowledged receipt of presentation copies of Sanscrit works.

Extracts of letters from Messrs. BURNOUF, JACQUET, and Professor LASSEN, connected with the same topic, were read ; also from Messrs. CAS-

sin, agent and bookseller to the Paris Society, suggesting arrangements regarding the prices of the several works.

A letter from M. ROUY DE ROCHELLE, President of the Geographical Society of Paris, stated that a resolution of the Society had determined to present the Asiatic Society with a complete series of their Bulletin, anterior to the period when its relations with Calcutta had commenced.

*Resolved*, that the compliment be returned by presenting a copy of such former volumes of the *Researches* as are in store.

A letter from Mr. EDWARD THOMAS, C. S. at Almorah, presented three manuscript volumes in short-hand of the late Mr. LAIDLAY.

They appear to be private note books, and memoranda of the author's reading—not in the common form of stenography, and therefore illegible.

Dr. D. STEWART presented copies of the Proceedings of the Statistical Society of London for 1835-36, and series of questions and forms for circulation, with a view of extending its information on subjects connected with the science.

The PRESIDENT founded upon these documents, a motion for the formation of a Committee in the Society, which should direct its exclusive attention to the Statistics of India, both by inviting returns to circulars modified to suit the circumstances of the country, and by searching, with permission, the records of Government.

Mr. H. T. PRINSEP urged that the magnitude of the object was beyond the power of a Committee; the Government had at one time expressly commenced such a record, and had given it up after spending a lakh and a half of rupees on three small districts.

Dr. STEWART thought that the materials collected might be examined and abstracted by the Committee, and, without aiming at minute detail, much useful information might be obtained on the population and mortality, for instance, of the principal towns. He had himself lately roughly estimated the mortality of Calcutta, and was appalled at finding it 1 in 26, the highest rate almost on record. After some discussion it was

*Resolved*, that a Statistical Committee be formed, consisting of Sir B. MALKIN, Mr. J. G. GORDON, Mr. W. ADAM, Mr. BAILLIE, and Dr. D. STEWART, the latter gentleman kindly undertaking the duties of Secretary.

### *Library.*

The following books were presented.

The Archaeologia, or Transactions of the Antiquarian Society of London—*by the Society.*

Transactions of the Geological Society of London, vol. iii. part 3, and vol. iv. part 1—*by the Society.*

Journal of the Royal Asiatic Society of London, No. 5—*by the Society.*

Proceedings of the Geological Society of London, Nos. 40, 41, 42, 43, 44, and 45—*by the Society.*

Sir PHILLIP GREY EGERTON'S Catalogue of Fossil fish in his own and Lord COLE'S Collection—*by the Author.*

Address delivered at the Anniversary Meeting of the Geological Society of London, on the 19th February, 1836, by CHARLES LYELL, M. A., F. R. S. President of the Society—*by the Society*.

Memoires de la Société de Physique et D'Histoire Naturelle de Genève, tome vii. pt. 1—*by the Society*.

Two Tibetan block-books, religious tracts, entitled *Smon-lam-btschu-tham-ab-yor-bai-sm-m-bsngo-ba*; and *Bchom-ldan-hdas-ma-sches-rab-kyi-pha-rol-tu-phy-inpai-sning-po*; printed at Leipsig—*by M. Jacquet*.

Glagolita Clozianus; Codicis Glagolitici Antiquissimi, Leipsanon foliorum servatum in Bibliotheca Paradisi Cloz Tridentini, by Bart. Kopitar, Curator of the Imperial Library at Vienna—*presented by the Author*.

Gefchichte der Osmanifshen Dichtlunft—*by the Baron Von Hammer-Purgstall*.

Lectures on Comparative Anatomy, by Dr. ROBERT E. GRANT—*by the Author*.

Bulletin de la Société de Géographie, vol. i. iii. iv. to x. and xvi. to xx. of the first series; and vol. iii. iv. of the second series—*by the Society*.

Abrégé du Roman Hindustani intitulé La Rose de Bakawali, par M. GARCIN DE TASSY—*by the Translator*.

Mode d'Expression Symbolique des Nombres employés par les Indiens, les Tibétains et les Javanais—*by M. Jacquet*.

Journal Asiatique, Nos. 90, 91, 92, 93, 94, 95, and 96, for 1835, and Nos. 1, 2, and 3, of the New Series for 1836—*by the Asiatic Society of Paris*.

Madras Journal of Literature and Science, No. 13—*by the Madras Literary Society*.

The Indian Journal of Medical Science and Scientific Review, No. 12—*by Dr. F. Corbyn, the Editor*.

A copy of the Old Testament, translated into the Burmese language, by the Rev. A. JUDSON—*through Rev. Howard Malcom*.

GAY's Fables, translated into Urdú Poetry, by Raja KALIKISSEN Behadur—*the Translator*.

"Mashtoz," or the Ritual of the Armenian Church; in two volumes, printed in Calcutta, and *presented by the Editor, Mr. Ardal*.

The Meteorological Register for October 1836—*by the Surveyor General*.

The following books, selected by Professor WILSON, were received from the Booksellers:

Eichhoff Parallele des langues de L'Inde. Paris, 1836, royal 4to.

Freytag's Hamasæ Carmina, 4to. (in Arabic.)

Amrulkaisi Moallakah, Arab. et Lat, ed. J. A. HENGSTENBERG, Bonn, 1823.

Kosegarten, Amrui ben Kelthum Taglebitæ Moallakam Abn Abdallæ, 4to.

Humbert, Arabica Chrestomathia Facilior, 8vo.

Rosenmuller, Institutiones ad Fundamenta Linguæ Arabicæ, 4to.

Bernstein, Hetapadaesi particula, edidit et Glossar. Sanscrit, 4to.

Wustenfuld, Abulfedæ Tabulæ quædam, &c. 8vo. Gott. 1835.

Flugel, Corani Textus Arabicus ad fidem lib. MSS. 4to. calf and lettered.

PETTIGREW's Egyptiau Mummies, 4to. ditto.

GUTZLAFF's Voyage to China, post 8vo. ditto.

AUBER's British Intercourse with China, 8vo. ditto.

DE LA BECHE's Geological Manual, 8vo. ditte.

MCCULLOCH's Commercial Dictionary, 8vo. ditto.



- MOOR'S Oriental Fragments, post 8vo. ditto.  
 WIGHT and ARNOTT'S Prodrum, 1 vol. 8vo. ditto.  
 GUTZLAFF'S History of China, 2 vols. 8vo. ditto.  
 BENNETT'S Wanderings in New South Wales, 2 vols. 8vo. ditto.  
 SMITH and DWIGHT'S Missionary Researches in Armenia, 8vo. ditto.  
 ROBERT'S Illustrations of Sacred Scriptures, 8vo. ditto.  
 WILKINSON'S Topography of Thebes, &c. 8vo. ditto.  
 BRETON'S Scandinavian Sketches, 8vo. ditto.  
 HOSKIN'S Travels in Ethiopia, 4to. ditto.  
 ROBERT'S Scenes &c. of Hindoostan, 3 vols. post 8vo. ditto.  
 WELLESLEY'S Dispatches, vol. 1. ditto.  
 MALCOLM'S Memoir of Lord CLIVE, 3 vols. 8vo. ditto.  
 LABORDE'S Mount Sinai and Petra, 8vo. ditto.  
 CAREY'S Memoir of Dr. CAREY, 8vo. ditto.  
 RICH'S Koordistan and Nineveh, 2 vols. 8vo. ditto.  
 Edinburgh Cabinet Library—China, 3 vols. 12mo. ditto.  
 ABEEL'S Residence in China, 12mo. ditto.  
 Nala and Damayantí, by MILMAN, imperial 8vo. ditto.  
 AKERMANN'S Catalogue of Roman Coins, 2 vols. 8vo. ditto.  
 MADOX'S Excursion in the Holy Land, 2 vols. 8vo. ditto.  
 LANG'S History of New South Wales, 2 vols. post 8vo. ditto.  
 SEALE'S Geognosy of the Island of St. Helena, folio, cloth.  
 WIGHT'S Contributions to the Botany of India, 8vo. calf and lettered.  
 DAVIS'S Chinese, 2 vols. post 8vo. ditto.

*Antiquities and Literature.*

MR. WALTER EWER, in a note, adverted to Mr. TRAILL'S drawing, of the *Garhwal* tridents.

The proportions of the trident of *Barahát* are incorrectly large for the staff, (see Plate XXIX.)—the edge of the axe should be at right angles to the trident, and consequently not visible laterally on the sketch:—the letters of the inscription also do not project from the surface, but are indented. The words are sufficiently correct.

Lieut. BARTON, on his departure for Europe, begged the Society's acceptance of a copy in manuscript of BAHADIN'S Life of SALADIN; also of NAPOLEON'S account of the Campaign of 1805, printed in Arabic at Alexandria.

Captain JENKINS forwarded a copy of the Ahom alphabet, compared with the Bor Khamti, Shyán, Laos, and Burmese, with explanatory notes by Rev. N. BROWN.

This alphabet has been a desideratum for some time, and as very few indeed of the inhabitants of Assam are now acquainted with this extinct character, preserved chiefly on the coins of the indigenous rájas, an opportunity had been sought in vain for recovering it, until Mr. BROWN'S residence and study brought him in communication with some pandits who have given the desired information. We hope to publish it in our January number.

MR. J. G. HEATLY submitted a second paper on Analytic Geometry.

*Physical.*

Geological specimens from Kemaon, with a descriptive catalogue.—

Also, a list of the rock specimens from the Kasiya range and Assam, formerly deposited in the Museum, presented by Dr. McCLELLAND.

A fine series of butterflies, moths, and insects from Sagur was presented by the Secretary, being part of a rich collection forwarded to him by Major HEARSEY, Commanding 2nd Local Horse.

Volcanic ashes picked up at sea by Captain FERGUSSON, of the ship *Henry Tanner*, presented by Mr. T. L. HENLEY.

"The position in which these ashes were picked up was 35 miles South lat. and 15° 50' west long. The sea was in violent agitation.

On a former voyage by the same commander, in nearly the same place (lat. 1° 35' S. and long. 20° 45') much alarm was created on board by a violent rumbling noise, the captain and officers believing the ship to have struck and grating over a coral reef: no bottom, however, was found on sounding.

In the same latitude and about a degree more easterly, there is a shoal laid bearing the name of some vessel, but considered doubtful."

The ashes are black, and resemble cinders or pumice in consistence.

A collection of lichens from the Himálaya Mountains, was presented for the Museum, by Mrs. SIDDONS.

A specimen of Adjutant, (*Ciconia Argala*,) presented by Dr. O'SHAUGHNESSY, and mounted in the Museum.

A specimen of the Modern Crane of LATHAM, purchased and mounted in the Museum.

*Note.*—The latter of the above specimens is generally considered as the young bird of the former, although LATHAM thinks it a distinct species. The attention of observers is requested to the point.

A skeleton of the Hindústání Bullock, presented by Captain CARTWRIGHT, and articulated in the Museum.

A ditto ditto, presented by Major TENNANT.

A stuffed specimen of Albatros, (*Diomedea exulans*,) presented by Mr. J. W. LINTON of Howrah.

A specimen of the Nípal Musk Deer, and of the *Ailurus Fulgens* or "Wah" of the Bhotiahs, by Dr. A. CAMPBELL, of Katmandhú.

#### *Papers Communicated.*

Notice of Balantium, a genus of Pteropodous Mollusca inhabiting the Southern Indian Ocean, by W. H. BENSON, Esq.

Notice of the Musk deer of Nípal, taken at a postmortem examination, by Dr. A. CAMPBELL.

Observations on the anatomy of the plants of the order Hepaticæ, accompanied with a series of beautiful Iconographic drawings of specimens of the three sections. *Jangermannia*, *Marchantia*, and *Riccioideæ*, by Dr. WM. GRIFFITHS, Assam.

Remarks on the Silk-worms and silks of Assam, with specimens of the moth, worm, chrysalis, cocoon and silk, by Mr. THOMAS HUGON, illustrated with drawings by Mr. HUDSON, Deputy Revenue Surveyor, were forwarded by Major JENKINS, Governor General's Agent in Assam.

Having been placed in the hands of Dr. J. H. HELPER for arrangement and examination, that gentleman read at the close of the Meeting a paper on the indigenous silk-worms of India.

Dr. HELFER commenced by a series of observations on the importance of silk as an article of wearing apparel throughout the globe. He stated that the discovery of India and China was valuable to the ancient Greeks and Romans, chiefly on account of the precious web of the Bombykia, called *Se* or *Ser*, whence the newly discovered countries derived their name of *Serira*. JUSTINIAN, said Dr. H., obtained an insight into the secret of its manufacture from two Persian monks, the first silk being fabricated at *Byzantium*. Dr. HELFER followed up his subject by stating, that the Sicilians in the time of ROGER I. became wealthy by the introduction of silk into *Palermo*,—that the Venetians acquired riches by the trade of silk with the Levant, and that in our days it is an unlimited source of income to countries cultivating it on a large scale. France alone exported in the year 1820, 130 millions of francs worth of silk, and England consumes annually 4,700,000 pounds, for which it is chiefly indebted to foreign countries.

Dr. HELFER considers India particularly suited for the cultivation of silk, and deems it very interesting and important, that this country possesses already eleven known different kinds of silk-worms, producing in abundance silk of different qualities, and having by this the internal means of providing all Europe with this precious material. He enumerated the eleven different species, of which seven (though silk from them has been manufactured), never have been mentioned before. (The subject was illustrated by the exposition of all the different qualities of silk, the preserved moths, cocoons, chrysalis, and eggs.) Two of the silk-worm species, the Tusseh and Arrindy, were known in India, and their silk was considered singular enough in Europe, and regarded as inferior quality of the mulberry silk-worm,—though Dr. ROXBURGH and Dr. BUCHANAN, had long ago published an account of them, which Dr. H. quoted. Two different species were discovered by Dr. H.; four others were mentioned as problematic, and three other new species sent from *Assam* by Capt. JENKINS, accompanied by a very interesting memorandum. Dr. H. deems those sent from *Assam* exceedingly valuable, as the cocoons which they produce are considered by Mr. W. PRINSEP, exceedingly fine.

Dr. HELFER then, after giving a systematic description of all the new species, went into the question as to whether the silk of India is naturally inferior to that of other countries. He regards the question as undecided, and considers that every thing must depend upon the rearing of the worm in houses—upon the quality of their food—upon the first chrysalic operations—and upon the manner of working the silk. He proposed that all moths producing cocoons—which, judging by analogy, he computed at upwards of 130 kinds in India,—should be examined, and specimens of raw and wrought silk sent to Europe; and he thinks it certain, that, by the manufacture of silk on a large scale, a vast revenue will accrue to this country. He referred to the value set in Europe upon the coarsest material produced by the Arrindy silk worm. The Doctor concluded his very interesting discourse by narrating a fact communicated by Dr. GLASS of *Boglipur*. It appeared that Dr. G. had sent specimens of the silk to England: when it was shewn to the different manufacturers they answered, that the people in India had been deceiving them by stating that the fine Cashmere shawls are manufactured from the wool of the goat: it was plain to them that the shawls were composed of the silk, and they said, that, with *that* material, they, the English manufacturers, could make better shawls than any which came from India.

The President, on behalf of the Society, acknowledged their obligations to Dr. HELFER for his interesting paper.

(We shall hasten to print it when the drawings of Mr. HUDSON can be engraved.)

*Meteorological Register, kept at the Assay Office, Calcutta, for the Month of November, 1836.*

Day of the Month.	Observations at 10 A. M.						Calculated Humidity.			Observations at 4 P. M.						Calculated Humidity.			Register Thermometer Extremes.		Rain.	Wind.	Weather.				
	New Stand. Barometer red. to 32°.	Old Stand. Barometer at 32°.	Thermome-ter in air.	Depression of wet-bulb.	Do. by Les-see's Hygro.	Dew point.	Hair Hy-grometer.	Centesimal Hygrom.	Pour by wet-bulb.	Ditto by dew-point.	Do. by hair hygrom.	Centesimal Hygrom.	Depression of wet-bulb.	Do. by Les-see's Hygro.	Dew point.	Hair Hy-grometer.	Centesimal Hygrom.	Tension of vapour by wet-bulb.	Ditto by dew-point.	Do. by hair hygrom.					Cold on roof.	Heat in sun.	Morning.
1	29.456	29.764	80.2	4.1	3.9	70.2	82.0	80	85	77	72	80	7.2	3.3	71.0	87	84	87	84	87	71.7	91.7			cloudy.	showery.	
2	773	787	80.6	3.1	3.0	70.3	81.5	85	85	77	72	80	7.2	3.3	70.3	87	84	87	84	87	67.5	95.4			do	clear.	
3	769	783	80.2	3.0	3.0	72.5	83.5	83	85	77	72	80	7.2	3.3	72.5	87	84	87	84	87	66.4	91.0			do	cloudy.	
4	787	801	80.2	3.2	3.0	72.5	83.5	83	85	77	72	80	7.2	3.3	72.5	87	84	87	84	87	66.4	91.0			do	cloudy.	
5	932	971	80.9	3.1	9.7	58.8	80.0	63	66	68	63	63	44	16.6	14.8	56.6	35	32	35	32	35	65.4	111.0			cir. cumulus.	
6	943	979	80.9	3.1	9.7	58.8	80.0	63	66	68	63	63	44	16.6	14.8	56.6	35	32	35	32	35	65.4	111.0			cir. cumulus.	
7	945	981	80.9	3.1	9.7	58.8	80.0	63	66	68	63	63	44	16.6	14.8	56.6	35	32	35	32	35	65.4	111.0			cir. cumulus.	
8	945	981	80.9	3.1	9.7	58.8	80.0	63	66	68	63	63	44	16.6	14.8	56.6	35	32	35	32	35	65.4	111.0			cir. cumulus.	
9	962	1020	79.1	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
10	962	1020	79.1	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
11	988	1023	78.7	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
12	927	969	78.3	3.1	9.7	58.8	80.0	63	66	68	63	63	44	16.6	14.8	56.6	35	32	35	32	35	65.4	111.0			do	clear.
13	927	969	78.3	3.1	9.7	58.8	80.0	63	66	68	63	63	44	16.6	14.8	56.6	35	32	35	32	35	65.4	111.0			do	clear.
14	909	956	78.3	3.1	9.7	58.8	80.0	63	66	68	63	63	44	16.6	14.8	56.6	35	32	35	32	35	65.4	111.0			do	clear.
15	987	1023	78.3	3.1	9.7	58.8	80.0	63	66	68	63	63	44	16.6	14.8	56.6	35	32	35	32	35	65.4	111.0			do	clear.
16	948	977	77.1	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
17	914	945	77.5	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
18	926	961	76.7	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
19	941	978	77.1	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
20	923	965	75.7	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
21	889	945	76.7	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
22	902	956	75.0	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
23	860	902	74.8	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
24	856	903	74.9	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
25	872	906	72.2	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
26	903	942	70.7	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
27	903	942	70.7	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
28	929	968	71.3	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
29	925	967	71.3	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
30	938	966	71.7	3.1	8.4	62.2	79.0	62	62	64	58	58	58	14.6	14.4	56.6	40	45	40	45	50.8	102.5			do	clear.	
Mean	29.928	29.795	80.2	4.1	3.9	70.2	82.0	80	85	77	72	80	7.2	3.3	71.0	87	84	87	84	87	59.0	99.8	0.13	light northly	dry fine weather.		

New Standard Barometer lower than old at 10 A. M. 0.036 and at 4 P. M. 0.067 inch. Captain Henning of the Windsor has obligingly afforded me another opportunity of comparison with the Royal Society's Standard Barometer, by his new and excellent marine Barometer which had been found to stand too low on a mean of 5 observations, 0.028 (at 32°) the same stood higher than my old standard at 10 A. M. 0.003 and at 4 P. M. lower 0.009; making my old standard lower than the Royal Society's instrument 0.020. No correction is applied for capillarity. My new Standard stands in like manner too low, at 10 A. M. 0.065, at 4 P. M. 0.062 inch. The hair hygrometer this month was unfortunately broken.





